

MICHIE'S PRIVATEVIEW

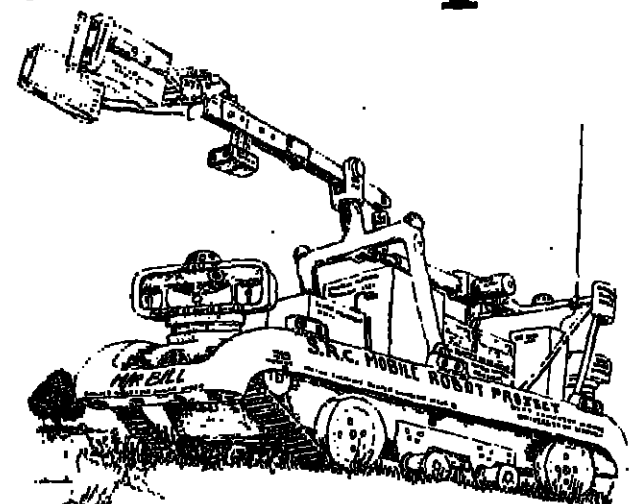
Robot workshop of the world?

THE Department of Industry's committee on automated small batch production has concluded that the UK lags our major industrial competitors by about 10 years. This was revealed at a meeting on robotics sponsored by the department's National Engineering Laboratory. The meeting was both thrilling and deeply depressing.

Internationally minded enthusiasts for new technology were given a feast of new marvels from the R&D laboratories of Volkswagen, Renault, Fiat and Unimation. The latter's current experiment is with two-armed assembly of an entire car transmission system.

The meeting also listened with disbelief — and for those patriotically inclined — with horror to evidence of the miserable neglect of robotics R&D in the UK.

It is now argued by some that R&D would come too late. An initial headlong scramble is now needed if seeds of the new



This concept of a rough terrain robot has been created by Mike Lamont at Warwick University under the Science Research Council's mobile robot project.

Industry are to be planted in UK soil. Such a scramble has to start with importing and copying. Only when a viable domestic technology has been thus established can we be in

any position to understand and exploit the fruits of new research.

My own inclination is to draw a sharp distinction between robots for British

manufacturing industry, and robot manufacture as a British industry. In the second I perceive the real chances — based on selling where the market really is. This means looking on the huge manufacturing industries of our competitors in Japan, West Germany, and the US, as prime customers.

So long as the annual rate of investment in new plant and equipment runs at about one half that of the main competitor nations, our factories cannot afford even to assimilate the inventions of the past, let alone take up revolutionary novelties.

Could the UK become the robot workshop of the world? In the immediate future, giants like Unimation will be hard to beat. In the "hand-eye" game anyway, even research will need to import the engineering hardware at the start.

Software is another matter. Here capital costs and heavy engineering capacity are not the constraints. The industrial

world today can buy useful dumb robots off the shelf.

But which country's R&D will be first to put real smartness and learning ability into their make-up?

Not only computer scientists but many others perceive in the foreign robotics build-up something of an emergency R&D project conducted in the wartime style, cutting red tape, have been discussed. Some years ago I myself attempted to mount a robotics "crash project" of this kind, but the climate of official opinion was not ready.

For the time being, then, the priority must be just to scramble, importing and copying finished technology. Fundamental robotics should be done, but geared towards the post-scramble 1980's.

There are ways, particularly in "computer vision", in which such work could blend well with a well-planned "expert systems" programme. My hunch is that the meeting point will come with autonomous



exploratory vehicles which require to exercise some scientific expertise.

Let Propulsion Laboratory's Mars Rover vehicle be the supreme example. Due to be operational in the mid-1980's, it will perform on Mars many of the sorts of measurements which human astronauts did on the moon.

Many of the knowledge-representational issues can be studied with quite cheap laboratory rigs. Shown here is Mike Lamont's drawing of Mr Bill, the mobile robot he is developing at Warwick University which made its debut at a Royal Society soirée.

Donald Michie

PROGRAMMER NOTES

Two winners in Fortran competition

All the entries to our Fortran competition have now been judged by Dr I. D. Hill, who laid down the objective of writing a DINT function using the strict ANSI 1966 standard.

He examined each entry with great care, noting even the least divergence from the ANSI standard. Well known for his refereeing work for the RCS on Algol and Fortran algorithms, Dr Hill — who works for the computing and statistics division of the Clinical Research Centre — maintains he enjoys the work. Programmer Notes offers thanks for all his hard effort. His report follows.

THERE were 43 entries altogether. The variability in size of entry was enormous, ranging from a postcard at one end of the scale to 40 pages of computer output at the other.

Seventeen of them could be rejected at once, either for obviously failing to do the right job or for violations of the 1966 Fortran Standard. Some of the violations were serious: mixed mode (integer and double precision) expressions; declaring

DOUBLE PRECISION DINT on the second line in addition to DOUBLE PRECISION FUNCTION DINT (VALUE) on the first; a loop expressed as DO 30 I = 0, -1

and so on. A few were merely forgetful, such as omitting the END line; while seven fell into the trap of including non-Fortran characters (‘ ’) in comment.

Whether the Standard intended to disallow this may be doubtful, but the wording is absolutely clear that it is disallowed, and the competition was clear in requiring the provisions.

DOUBLE PRECISION FUNCTION DINT(DARG)
DINT=DARG
DO 10 I=DARG, DARG
DINT=DINT+DARG
GO TO 10
END

DOUBLE PRECISION DINT, DARG
DINT(DARG)=DARG-DMOD(DARG, 1.0001)

Figure 2

The remaining 26 were all examined in detail. They could at once be divided into two categories — those that realised that a simple solution could be found by using the DMOD function, and 17 that did not.

Some competitors may have examined the table of intrinsic functions, found MOD and ASMOD there, but not DMOD, which is included, however, among the basic external functions.

One author wrote "I did look at the problem of defining a fully portable DINT without the use of DMOD, and I shuddered". So did I when I first met the problem, which is what led to my suggesting it as a competition. Some entries caused the shuddering to increase, while a few showed that something neat is possible. The best of these is shown in Figure 1.

This cannot really compete, though, with the use of DMOD, particularly if expressed as a statement function, rather than an external function (see Figure 2).

The operations called for by this (assuming that the compiler does not recognise the argument 1.0001 as a special case) are, of course, quite tedious: consisting of 1. Divide DARG by 1.4; 2. Take the integer part (which we eventually want); 3. Multiply by 1.4; 4. Subtract from the original DARG (to get the fractional part); and 5. Subtract from the original DARG (to get the integer part again).

Only two competitors submitted this solution in the neat statement function form and £10 prize is awarded to W. Henry of Belfast and to Peter Chubb of East Tilbury.

SOFTWARE FILE

Asas implemented on Prime minicomputer

THE popular structural engineering package Asas has for the first time been implemented on a minicomputer, a 256K Prime 400. The package developers, Atkins Research and Development, have also adapted the software for a greater range of Digital Equipment models, including the DECsystem 2020.

The system, in its latest release, Version G, was converted for use on an in-house Prime 400 by consulting engineers Rendel, Palmer and Tritton, who quote an eight man-week conversion effort.

The version produced, which will be marketed by Atkins, is used by Rendel, Palmer and Tritton in conjunction with its own graphics software. However Atkins says that the standard Asas display system, ASDS, based on Gino-F, may be incorporated for future implementations.

The DECsystem 2020 implementation was demonstrated by Digital Equipment at this year's Hannover Fair. Atkins has also run the software successfully on a 2050 machine and has been asked by DEC to consider an implementation for the VAX processor.

Asas, which received NCC support under the Software Products Scheme, has been widely installed in UK bureaux. It has previously been run only on large systems, including Univac 1100, DECsystem 10 and CDC mainframes.

Its implementation on the Prime equipment further widens

the range of options open to prime engineering users. The system already supports the Genesys and Pafec packages for structural analysis, the latter, like Asas, offering finite element capabilities.

Atkins has now concluded an agreement under which Honeywell customers requiring a structural analysis package will be referred to Atkins (CW, March 17, 1977). The company is currently exploring alternative ways in which Honeywell customers could be serviced.

Sydney office

AN office in Sydney, Australia, has been opened by London systems house Hoskyns. While the eventual aim is to provide a full range of services as in the UK operation, initial efforts will be concentrated on marketing software packages, particularly the company's well-established Modular Applications Systems (MAS).

User develops Shadow II mapping aid

THE creation of screen maps for TP applications is frequently lengthy, tedious, and error-prone. As a result, most TP monitors now provide methods of online screen formatting which generate appropriate maps and control information automatically.

Such features can make possible considerable savings in

More control theme of Pafec update

A NEW version of the Pafec program for automatic finite element calculation has been introduced by Computerline Bureau Services on Plessey's ICL 1906S at Wythbridge, Surrey. Pafec 75 makes the preparation of input data more straightforward and offers the user enhanced run-time control and modelling facilities.

Module names may be abbreviated to four letters and the analysis program can be run in parts, with facilities for off-line, extending, and altering each section. Pafec 75 also simplifies the process of error correction and allows the user to mix certain finite elements.

Both Pafec 70+ and Pafec 75 are used internally by Plessey, the former being the company standard for finite element calculations. Originally written at Nottingham University, both packages are marketed by Pafec Ltd, a company formed specially for this purpose, and are offered by Computerline under licence.

Apollo offered as stand-alone pack

A JOB input subsystem developed by Value Computing Inc as part of its automatic scheduling system, The Scheduler, is being offered in the UK and Europe as a stand-alone package.

The subsystem, Apollo, provides OS users with online facilities for submitting JCL. As with other Value products for operations management, it will be marketed by RTZ Computer Services.

When used with The Scheduler, the Apollo subsystem retrieves JCL automatically from a production JCL library according to the schedule defined in the work-load control file. JCL is then submitted automatically to the operating system queues in schedule sequence.

However, the system also provides facilities for the retrieval

and submission of unscheduled jobs and online editing facilities for temporary overrides, such as date card changes or changes in parameters.

It is these facilities which comprise the stand-alone package. Constituting a card-less front end, the system allows an operator to select, modify, and submit JCL and control cards without leaving the console.

Jobs submitted can, if required, be completed automatically; more generally, they are entered to the Hsp or other queue under Hold, so that subsequent initiation is under the control of the operator.

Besides allowing central control of JCL, the system also offers the advantage of automatic audit trail of all JCL changes made. Another useful feature is the ability to display procedure libraries online.

Apollo interfaces with a standard Partitioned Data Set or with a JCL master library held by the Librarian, Panvalet, or any other source library system. It runs under MFT, OS/VSI, OS/VSE, and MVS, supporting ASP, JES2, JES3, and Hsp.

Foresight enhancements

ENHANCEMENTS in the latest release of Foresight, Version VI, are designed principally to extend the program's capacity and accelerate its calculation facilities. Foresight, a financial planning and reporting system, is owned by United Computing Systems Inc, and is available from LUCS either as an interactive bureau service or as a package for in-house use.

Version VI extends the number of reporting periods from 30 to a maximum of 100, the number of operators and operands per line from 10 to 100, and the total matrix positions for reports to 30,000.

Another enhancement is the provision of an algebraic logic facility. This can apply a relationship to all elements in a line, thus avoiding the necessity for repeated definition of an equation.

African 'first'

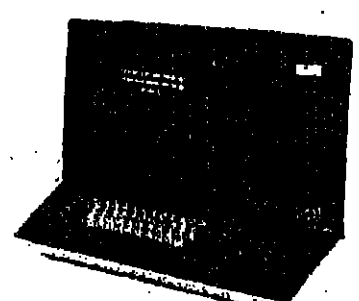
A COMPUTER services company in Abidjan in the Ivory Coast has become the first user in French-speaking Africa for Gael 3, an accounting package sold by Silgos-CPP. The company, La Cierle, will run the software on an IBM 370/135.

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Clearing the air on structured programming

A MAJOR cause of confusion over structured programming is that the principles involved are a curious blend of the old and the new. A definitive new publication by the NCC should help many to achieve a better understanding in this jargon-rich field.

The book, Program Design Methods, was originally prepared in 1976 as an internal report for NCC staff and members. It has now been reprinted for the general public.

The book begins with a cogent review of the background, carefully establishing the historical and practical context of the new methods, then leads to a linking chapter on the principles of program design.

Subsequent chapters examine the implications for coding "structured coding" — and for program development. Two approaches are then outlined — IBM's Improved Programming Technologies, IPT, and the Michael Jackson design method.

The book concludes with a discussion of program design languages, computer-based design systems, and documentation aids.

Complete and concise, the survey will provide for many a very useful introduction to the concepts, techniques, and terminology of structured programming. Particularly valuable is the emphasis throughout on relating the new methods to

earlier practices.

Other attractive features are a very clear, developmental, exposition and the inclusion of carefully chosen examples and illustrations. Although at pains to introduce and describe new terms where appropriate, such as "structured walk-through," the book annoyingly contains no index.

*Program Design Methods, by G. B. Biesard, 104 pp. £3.50. NCC Publications, Oxford Road, Manchester M1 7ED.

Puzzler

MY neighbour's eldest son is a wizard at draughts. The other day he bet me 50p that he could hold the draw against 12 Black Kings, using only seven White un-crowned men.

I could have first move with the Kings, but he would specify the starting position of all 19 pieces on the board. He promised that no stalemate situation would be involved — White would have moves available at each turn, but Black would be unable to break through the defences!

After due thought I accepted the wager, and soon lost 50p. See page 45 for the young master's starting position.

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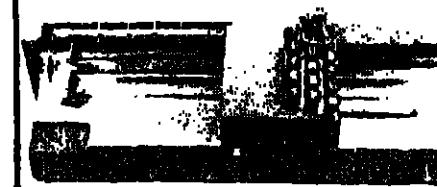
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MICRO NEWS

Edited by Martin Banks

Shape of computer games to come

TV GAMES are going to be passed this Christmas, for the pads are now predicting that keeping up with the Joneses will entail buying remote control model cars, and hand-held computer games. There are indications that the model cars will use derivations of the ultra-sonic TV remote control units.

In the hand-held computer games area, one has already appeared in the US, though it will not be sold in this country, at least in the foreseeable future. The toy is called Merlin, and it is being sold by Parker Brothers, a Massachusetts-based company. The company first entered the computer game marketplace last autumn with a game called "Code Name: Sector."

Merlin looks a bit like a telephone handset with push-buttons between the mouth-piece and earpiece. In fact, the machine does have a speaker in it and it makes about 20 different noises as you play with it. Included in its sonic vocabulary is a musical scale that enables you to play tunes you have com-

posed or programmed. It also uses the sounds in its six games, talking to you like Harpo with his musical instruments.

In addition to the speaker, Merlin has a control panel with 15 keys, four used as a system control and 11, numbered 0 to 10, for handling data. All the keys are pliable plastic membranes, actuated by a light touch. The 11 data keys have transparent centres, revealing LED lamps which respond to your touch.

To play with Merlin you press the "New Game" key and a number from one to six. The machine's repertoire includes: Tic-tac-toe, which it plays poorly; Echo, in which you tell Merlin how many notes to play, which it does at random, and then you try to duplicate the little tune; Music Machine, in

which Merlin records your composition and then will play it back, up to 48 notes or rests at a time. Mindbender, a kind of Master Mind that involves your guessing an eight digit number (you pick it); Black Jack 13, and Magic Square, a visual game that requires you to manipulate a pattern of LEDs until you get the winning combination.

All of these games have been squeezed into a single TMS1000 from Texas Instruments. The chip has a 2K memory, double that of the minimum TMS1000 processor. The development costs of the game are a secret, but are believed to be in the \$100,000 range. Whatever the cost, Parker Brothers is almost certain to recover them as the device will retail for about \$33 in the US.

Delicatessen in personal hardware

A NEW computer store, Byte Shop, opens this weekend in London and promises to be something of a delicatessen in personal computer hardware.

Springing out of the DEC OEM house, Computer-Aided Systems, the Byte Shop has, in fact, nothing to do with its famous US namesake. It will, according to Bill Jennings, "sell just about anything in personal computer equipment that can be sold through a retailer. We won't be handling just one product line."

Among the manufacturers that will be handled initially are Cromemco, Dynabyte, North Star, South West Tech, Apple, Smoke Signal Broadcasting and the Commodore Pet.

The Byte Shop is at 428 Cranbrook Road, Gants Hill, Ilford, opposite Gants Hill Tube station and opens for business officially on Saturday.

Errors in digital design

THAT fundamental errors can be made in the design of digital electronic circuitry has long been the view of Ivor Catt. Now, with his colleagues David Walton and Malcolm Davidson at CAM Consultants, he has published a book on his theories aimed at clarifying aspects of this important subject.

Called Digital Electronic Design, the book explains their views on such subjects as earthing in digital systems, interference from the mains, the distribution of DC power to logic and the interconnection of logic. A sound knowledge of what is already standard practice in digital design is required to appreciate many of the technical points being made in the book.

It does, however, mark a fundamental break with current digital concepts which, according to the authors, depend largely on analogue theories. Their approach is to return to, and update, the electromagnetic theories originated by Oliver Heaviside et al when telegraphic communications was a new technology.

"Digital Electronic Design by Catt, Walton and Davidson, PP127, 08: CAM Publishing, 17 King Harry Lane, St Albans, Herts.

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OP SPOT

By Bernard Allen

Security and safety neglected—survey



Two move to Nigeria

TWO operations people employed by Richard Costain Ltd have moved from the company's London site to take up positions at a new Costain installation in Lagos, Nigeria. For George Otta, who departed on May 2, the move means promotion from operations manager to DP manager. Mike Collins, who has already been in Lagos for several weeks, is operations manager. The all-Nigerian operations team will have no computing experience and Costain, aided by ICL training personnel, will give them courses in computer appreciation, hardware and software.

GREAT interest has been generated by the computer environment survey carried out by Opcomm, the operations group centred in Coventry (Op Spot, April 13). It is in this context that Bill Duffin, physical security adviser, writes to Op Spot.

"I was pleased to see that the Opcomm survey showed what some of us have been trying to say for years — that basic security, fire and safety requirements are not met at many computer centres," says Duffin.

DPMs are often blamed for any shortcomings in these matters, but Duffin, who views the situation from a different angle, feels that company specialists in these fields are too often reluctant to become concerned with the DP department, with extremely poor results.

He goes on, "In many cases I

find that the company security officer does not wish to get involved in DP matters, other than by putting a lock on the door and setting up a guard service which may by-pass the machine room."

On fire procedures, Duffin acknowledges that the computer room has particular requirements. Operators' fire procedures might need to be different from those followed in the rest of the building since they must include powering down the machine and storing tapes and discs.

But he emphasises that such procedures should be planned only in close liaison with the company's fire officer. As with security, that communication is often missing.

"Eventually," he continues, "the DPM hands the whole thing

over to someone within the department who, without any budget, is expected to become an expert on security, safety and fire, overnight."

He considers that security, fire and safety requirements are closely related and should be treated as such. "To be really effective the whole package needs to be thought out carefully, with risks identified and recommendations listed in order of priority."

"At this stage standards are drawn up, staff trained in-house and finally an on-going security programme agreed."

"Please let us cut out some of the wonderful theories drawn up by 'experts' over the past few years and let us get down to basics. A good 'no frills' programme will protect staff, data and maybe even hardware — provided the staff are involved," says Duffin.

... and what it means at one installation

"OUR stationery department, as we laughingly refer to it, is situated some 500 yards from the computer centre, and so the operators have to wheel a trolley across an exposed yard and into a large warehouse."

"So, says an operator making "some startling revelations" about his installation in a letter which is amusingly written in spite of its seriousness.

"Once inside the warehouse, our intrepid operator is confronted by a miniature Everest. The unlucky chap must then make a brave ascent to the top of the mound and drop the required stationery down to his accomplice."

He mentions the lack of consideration given to first aid. "Extra spice is added to the stationery department adventure when it is undertaken outside of normal office hours with the knowledge that there are no trained first-aiders or first-aid supplies on hand in case someone should fall or be hit by a box of stationery."

On security at the centre:

"The computer room has no security system at all, and anyone and everyone is apparently welcome to pay us a visit any time, day or night."

The computer room is described: "The machine room closely resembles a tomb, having no windows, no fire alarm and very little fire-fighting equipment. The floor is never cleaned and is littered with unused stationery, disc packs and blank company cheques."

And on staffing: "The small staff of operators covers two shifts and overtime. In the event of holidays, sickness or overtime, no cover is provided and a single operator must do the work of two regardless of the length of time involved."

Finally, facilities: "The facilities available to us are virtually non-existent. There is no rest room containing the fabled fridge and cooker, which we understand some privileged operators have access to. The coffee vending machine rarely works."

HINT OF THE WEEK

More Macrolist ideas

THIS week, three further hints relating to the listing of the George 2 Macrofile. They are from B. Miller, a project manager with RHP Bearings of West Yorkshire, who has already contributed to Op Spot on this topic (CW, April 27).

He says, "Three other ideas which may prove useful to anyone using George 2 are: "Firstly, put the macro which updates the Macrofile as the first in the file. The benefit of this is that should the Macrofile become corrupt

through incorrect editing, it can be corrected through the operating system rather than having to do a manual run."

"Secondly, space lines may be left between 'ENDMAC' and 'MACDEF', which also eases the reading of the Macrofile."

"Thirdly, by using the hash (#) comments may be inserted into the Macrofile, and they will then be printed but not processed. Under George 2 they may be placed anywhere in the file."

Come and exchange views

THE DPMA meeting planned for Tuesday, May 17 provides a rare opportunity for the exchange of views between operations staff

Operators often complain that nobody listens to their point of view. Well, Op Spot is listening, and Bernard Allen would like to hear your opinions and ideas on all matters relating to computer operations.

Write letters should be sent to Op Spot, Computer Weekly, Dorset House, Stamford Street, London SE1 9LU. Telephone calls are equally welcome and Bernard can be contacted directly on 01-281 8038.

and DP management.

The meeting will have a flexible format with a panel of speakers comprising operations staff and DP managers. Operations staff taking part are Ron Linton, computer operations controller at Manchester Polytechnic; George Stevenson, a contract operator; and Mike Rees and Dave Charles, of Opcomm.

The venue is the Control Data Institute, Wells Street, London W1. Light refreshments will be available from 6.00 pm to 6.30 pm, after which discussion will go on until about 8.00 pm.

TNT 2900 TRANSFER

Highlighted at the ICL Users' Convention at Eastbourne, this conversion facility developed by the Post Office translates files produced on ICL System 4 into 2900 format with remarkable ease.

Translation can take place either as a separate process or during normal program running.

This tool is available through NDPS—'phone 01-432 9258.

National Data Processing Service

NDPS, Tenter House, 45 Moorfields, London EC2Y 9TH

Intel AS/5: the first year.

See page 15

IBM retains its grip on world market

THERE is no sign of IBM's grip on the world general-purpose computer market slackening, according to IDC's estimate of the values of the installed bases of the major manufacturers as at December 31, 1977. IDC, which applies a stringent current market valuation to installed machines, gives IBM 71% of the market, followed by Honeywell with 8.3%.

The value of IBM's base can be assumed to reflect large numbers of 138s and 148s delivered over the past year, while Honeywell's base includes a large number of very old machines, whose value is therefore comparatively low. The full IDC figures are:

	value of base in \$1000 M	% of total
IBM	54.8	71.0
Honeywell	6.4	8.3
Univac	5.8	7.5
Burroughs	4.4	5.7
Control		
Data	2.6	3.4
NCR	1.8	2.3
DEC	.6	0.8
Amdahl	.3	0.4
Others	.4	0.6

Council's rent collection system caused confusion

THE two-year-old computerised rent collection system used by Manchester City Council is being modified following problems in the print-out of statements which resulted in some confusion among tenants.

"The print-outs were issued according to the period at which each tenant paid," explained Councillor Allen Roberts, chairman of the City Housing Committee. "If it was fort-

nightly or monthly, statements often arrived just before or after the tenant had paid, so they were indicated as being either in arrears or in credit. It has caused some concern, especially to the older people who don't like the idea of being in debt."

The problem should be solved by October when the print-outs, prepared on an ICL System 4/77, will be issued on a quarterly basis.

Inotech Courses June 1978

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Advanced Software Engineering Tools and Techniques 5-9 Jun London

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Return now to: **INFOTECH**

Japanese invest £2m in viewdata system

THE Japanese PTT Nippon Telephone and Telegraph is developing a viewdata system to handle the Katakana syllabary, reports the French paper *Electronique Actualités*.

NTT plans to invest over £2 million in the system for hardware alone. Software development will be financed jointly by NTT, broadcasting authorities and information providers such as newspapers.

Trial of the system, called Captain, for character, pattern and information network, is due to begin at 1,000 subscriber sites in August 1979.

The complex Japanese character set will require a 64K-

byte page store in the receiver, and adapters are expected to cost about £250.

The system will be able to handle 3,000 different characters.

Payroll service

A NEW payroll system called Payfact, put into service last month by Computer Management Group, is now used by more than 100 companies with a total of over 11,500 employees. The system runs as a bureau service every night of the week at all CMG's data centres and costs from £10 per payroll of 40 employees.

EEC leads on user freedom

● From front page

the Conference of European CUA and, at the end of last month, it organised a conference in Paris on standards.

He said that the Commission was seeking user help in three main areas: standardisation, software portability and transnational applications. And he suggested that European users are likely to submit to the Commission recommendations on terms of contract.

But unless there was some financial help for users working on committees concerned with topics of international and national significance, the outcome, he said, "will be a mere fraction of what could and should be achieved."

LETTERS TO THE EDITOR

Layman needs to be better informed

I WAS very interested to read Computerview and not a little cheered to find that a responsible and reputable professional journal such as your own shared my views on this subject.

I was recently invited to open a discussion at the Institution of Electrical Engineers following a paper presented by Sir Ieuan Maddock on "Electronics — the challenge of the future". In my remarks I referred specifically to the "Horizon" programme in much the same terms as your

leading article. My statement was subsequently hotly contested by one of the journalists present who thought, mistakenly, that I was including the technical press in my condemnation of the only too popular "doomwatch" approach to technological innovation.

We in NRDC are both constitutionally and personally dedicated to the promotion of invention and innovation generally and to advances in electronics and computer applications in particular as being very much in the public and national interest at this point in time.

Regrettably, it is only too easy to speculate on the sociological and ecological problems that could arise if the pace of change were dictated solely by economic pressures. Fortunately, this is most unlikely to be the case, but in our view the public interest will not be best served by fuelling the large degree of apprehension or prejudice which surrounds a subject on which the layman needs to be much better informed.

W. MAKINSON
Managing Director
National Research Development Corp.
London

Reducing cost of labour to create full employment

BEFORE discussing the details of the different methods for reducing the cost of labour to create full employment, as discussed in your correspondence columns, it is worth pointing out that the general principle behind such policies has not yet been given sufficient consideration. For example, no such policy was considered by Barrie Sherman (*Futureview*, February 23), even in the form that Keynes proposed: reducing real wages by creating inflation.

Naturally, I would have been shocked if Barrie Sherman had suggested a further dose of the Keynesian solution with the lowering of workers' standard of living at a time when technological change is making large increases in real wealth possible. It does need to be appreciated, however, that the present phase of technological change is likely to bring a fall in the real value of labour, just as happened in the first industrial revolution.

This point was well understood at that time by Robert Owen and well expressed by his son: "Will any man who stands on his reputation for sanity affirm that the necessary result of over production is famine; that because labour produces more than even luxury can waste, labour shall not have bread to eat? If we can imagine a point at which all the necessities and comforts of life shall be produced without human labour, are we to suppose that the human labourer is then to be dismissed to be told that he is now a useless encumbrance which they cannot afford to hire."

To me the message is simple: technological change can bring about conditions under which a large proportion of the population cannot live by the sale of their labour alone, and they should not be expected to do so.

This should not mean that their labour (which can still have a significant value), should be wasted in the dole queue, where they are denied the opportunity of raising their standards of living and enjoying the sense of satisfaction that a

job can bring. Both national wage and labour subsidy policies promise to avoid such waste and should be given much wider consideration. I hope Barrie Sherman and his research team will be among those to do this.

With regard to the distinction between a national wage (as suggested by John Harris and D. J. Grover) and labour subsidies, I cannot see how any major difference could arise in the long run, except that the former allows unemployment benefit to be included in the national wage, perhaps giving it a better image. This may well be important, but at this stage of the discussion when both policies are so far outside orthodox economic thought, the short-term advantage that labour subsidies have of enabling the raising of expenditure taxes without raising prices, make them more immediately interesting.

I agree with Grover that lowering the cost of labour as a factor of production means that certain new technologies should not be introduced. This is especially true if they make a high demand on other factors of production such as, for example, energy. Indeed, many existing processes should be phased out because they waste scarce resources. (Incidentally, others should be phased out because they degrade labour by creating boring and unpleasant jobs.) It seems likely, however, that there are many applications for the new microprocessor technology which enable a saving of both labour and other resources. Such applications should obviously be greatly encouraged.

If it is true that the problem of unemployment can be solved by reducing the cost of labour (and it has yet to be shown that it cannot) and if the new technology can take much of the drudgery out of life then we should all look forward to great benefits from this next industrial revolution.

G. R. BEACON
Research Fellow
Leeds Polytechnic



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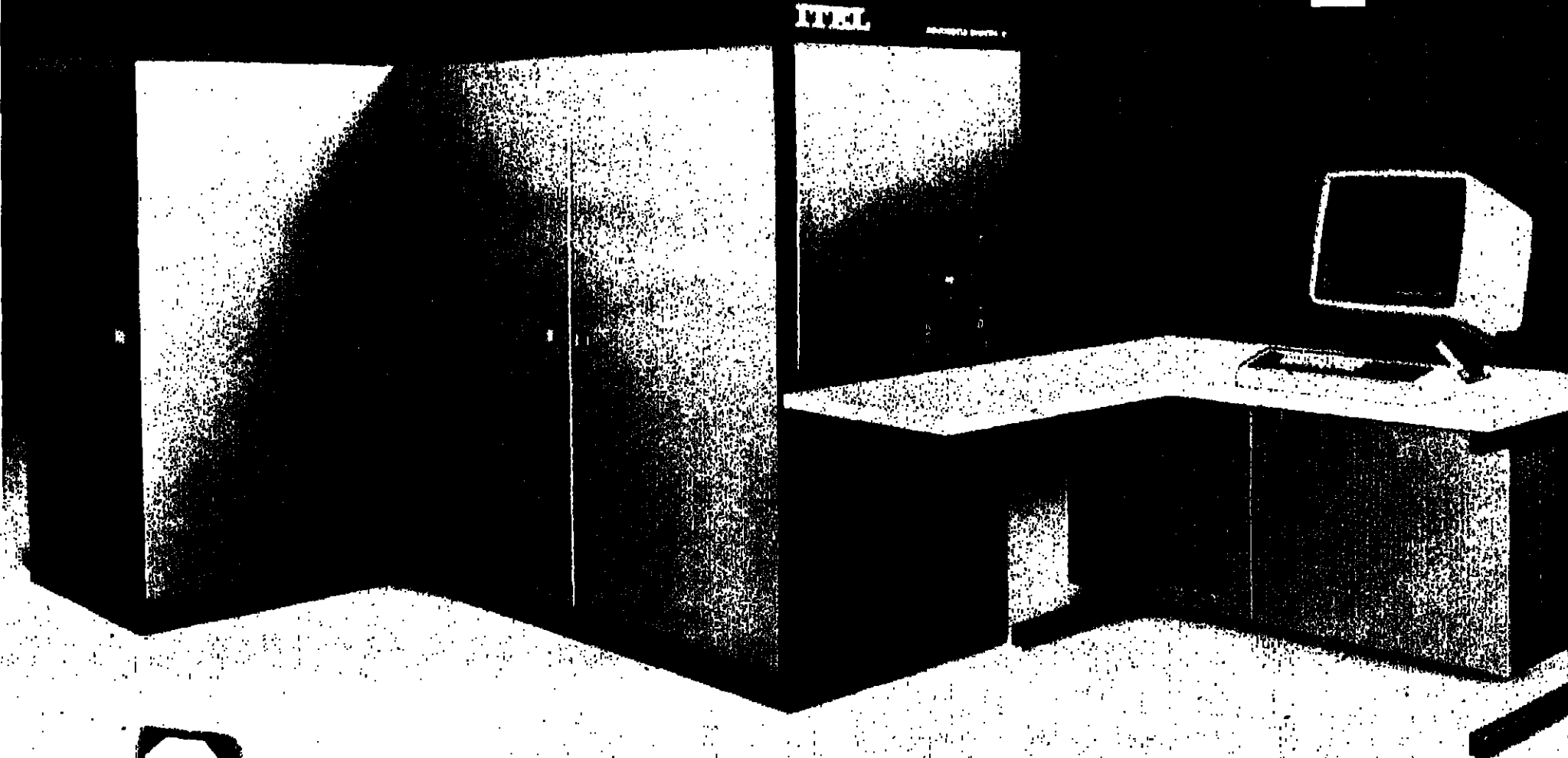
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ITEL
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Hotel system links up office functions

A TURNKEY hotel management system has been installed in the 850-bedroom Tara Hotel in London by Cura Consulting. The real time online system, Data Host, was developed by Sigma Data Computing Corp of Rockville, Maryland and uses hardware supplied by Four-Phase Systems.

The Tara Hotel and Cura are both owned by Aer Lingus, the Irish airline. The Tara is the first hotel in Europe to be equipped with the system, for which Cura has a distributorship agreement. Data Host automates both "front-office" functions — such as reservations, checking-in,

and account preparation — and "back-office" functions such as payroll, general ledger, and management reporting.

The telephone billing system is a good example of the scope of the system. Calls, dialled directly by a guest from his room, are recorded automatically by the system. The cost is then computed and added by the system to the customer's bill.

Cura Consulting is the consultancy, software and systems house division of Cura Data Processing. Formed in Eire in 1966, the company became a wholly-owned subsidiary of Aer Lingus in 1972.

Plessey wins US contract

THE news that Plessey has been awarded a contract, in collaboration with Collins Radio, to provide radio equipment for the US military, has been seen in some quarters as a consolation prize for its losing out on the two-year battle for international approval of an aircraft microwave landing system.

The struggle for MLS approval highlighted what could become a growing problem in de-

cision making, in that accusations and counter accusations abounded about false computer simulations of extrapolated test results.

Perhaps the classic case was the US simulation that "proved" the Plessey doppler system would not work at Brussels airport. Plessey, with the British Civil Aviation Authority promptly went there, set up the system, and showed that it did.

Triumph Adler acquires Diehl Datensystem

A COMPLEX series of agreements between US multi-national, Litton Industries, and West German group, Diehl, will result in Litton subsidiary, Triumph Adler, acquiring the Diehl Datensystem company, which makes and sells very small computer and office systems. In return, Diehl group will get 12.5% of Triumph Adler's parent, Triumph Werke Nürnberg, with an option to increase this to 25%. Triumph Werke was 88% owned by Litton, whose

stake will now fall to about 86%.

Another Diehl subsidiary, Computer Technik Müller, which builds and sells up-market business computer products is involved in the agreement to the extent that Triumph Adler gets marketing rights to CTM products, which sell neatly above the office computers in the TA product line.

TA will also collaborate with yet another Diehl company, Euroell, which manufactures

CMOS semiconductor components.

Meanwhile, under a separate agreement with the US firm, Portec, Triumph Adler is to manufacture under licence the Portec XL60 distributed processing system and sell it in West Germany, Austria and Switzerland as the TA 1540, both directly and through dealers. Portec already has an agreement with the Spanish company, Sacoima, relating to the XL series. (CW, April 13).

CDC chief hits out at US policy

ADDITIONAL joint ventures between Control Data and the Romanian government are to be established, but Control Data chairman, William Norris, blames the US government's export policy for the poor performance of the existing Rom-control Data venture which builds printers and other peripherals.

"After encouraging our efforts to establish the joint venture, the US government so long delayed licences to export the required technology that some of the products were out-



moded by the time we received the go-ahead," he said. As a result, the venture remained unprofitable for three years.

The new agreement with Romania runs for 10 years, and covers establishment of a local data services company, an R&D centre for applications software, procurement of CDC computers, rights to manufacture certain computers in Romania, and to assemble certain peripherals, and joint research and development undertakings.

Control Data last week

NEWS IN BRIEF

Joining the operator game

FINDING "operator of the year" appears to be quite a popular pastime nowadays, and Wordplex has joined in the fun by organising a competition to discover the best operator of their word processing system.

More than 300 girls have been invited to answer nine questions related to the use of the company's wordstations. The winner will receive a £150 prize and three runners-up will get £30 each.

The awards will be made at the International Word Processing Exhibition at Wembley on June 8.

Partners

TALKS between Olivetti and Stack have culminated in Olivetti becoming a partner in the components specification and bulk purchase company (CW, May 3). The company, based in Frankfurt, was formed three years ago by Control Data, ICL, Nixdorf and Plessey, to draw up specifications for semiconductor components required by all the companies and to gain the benefits of bulk purchase orders from manufacturers (CW, March 20, 1975).

88800 for ICL

CONSOLIDATING its position as a major mainframe supplier to several ICL divisions, Burroughs is to supply a large-scale 88800 mainframe to the Plant Protection division at Farnborough near Haslemere at the end of the year. ICL Plant Protection currently runs a B3700 and B2700 at the site, and has recently placed a supply order with Nixdorf for multiple 8820 intelligent terminal systems for installation all over Europe (CW, March 30).

Faster access

TO speed access time on its IBM compatible disc subsystems Memorex has introduced a cache memory called the 3700 which uses charge coupled devices to store frequently used data. It can have between one and 18 Megabytes of ECC. Another IBM compatible disc subsystem, called the 3700, is developing a system which buffers and a powerful processor (CW, September 8, 1977).

Driving on

DISC drives with capacities of 63.9 and 128.4 Megabytes have been introduced by IBM for use with the System 34. The previous maximum disc capacity was 27.1 Megabyte.

EPSS open day

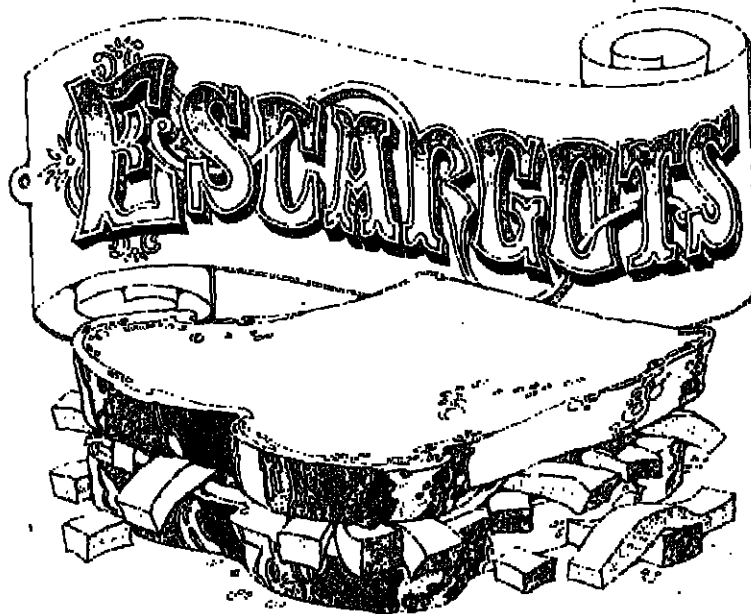
EUROPE's first demonstration of a public packet-switched service will take place on June 2, when the Post Office and 33 users of the Experimental Packet Switching Service co-operate in holding an open day.

Training centre

SPERRY Univac has opened a training centre in Hill Street, Birmingham. It replaces the company's two London training centres and will be used for customer training, systems support and sales training.

Appointments

All sorts of contracts for all sorts of tastes



At Knight Computer Services, we know better than to offer a chip butty to an escargot freak. After all, we're well aware that most DP people have as individuals an idea of their perfect contract as they do of their favourite food. So we take the time and trouble to discuss people's individual preferences, and to make sure that every man or

woman who comes to see us get the contract that's to their taste. And while we're on the subject of exotic dishes, we should point out that we can just as easily offer you a contract in a part of the world where home cooking means Bauern Bratwurst or Osso Bucco, as in the more familiar territories of Yorkshire pudding and jellied eels.

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For further details or advice on these and other U.K. and European Contracts still in the pipeline, call Sue Smyth, June Mogg or Jane Asbury NOW! on 01-491 4706 or 01-439 3411.

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IBM RJE OPERATIONS

LONDON/SURREY BORDER

To £3000 + S/A

Our client is a major international organisation and is currently seeking additional staff for its RJE Operations who will become involved with an international Remote Job Entry network. Data is collected from 16 and 18000 V8 processors located at company Headquarters, supporting links to Data Test equipment throughout the United Kingdom, Europe and North America.

Successful applicants will join a young and professional team working on a two shift rota, and will be able to offer at least one year's experience gained in an environment using RJE. It is a good opportunity.

These positions carry an excellent commencing salary accompanied by a valuable range of fringe benefits including a non-contributory pension scheme and annual bonus, so the person appointed can look forward to a secure and healthy future.

DO YOU KNOW GEORGE?

BERKS

To £4300

If you know George then let your acquaintance be the start of a long and exciting career.

A leading organisation is always looking for competent operators to oversee their skills of either George B or III and be able to adapt and understand advancing techniques within the installation.

This is an opportunity to join a team of computer professionals and work in an environment where the workload is demanding and varied.

Both operators and senior operators are sought with six to eighteen months' operating experience respectively.

In reward for using your skills and initiative, attractive salaries are paid and supplemented by a generous payment for working within a three shift system.

24-hour answering service

Please telephone for a confidential discussion or write to:

30 Fleet Street London EC4A 3DF
01-353 0981

WEST YORKSHIRE

ANALYSTS TO £5500

PROGRAMMERS TO £5100

Our clients are a major engineering organisation based in West Yorkshire, and looking to recruit a number of DP staff to help develop the computer installation into a major asset to the user departments.

ANALYSTS are required with varying amounts of experience in either commercial or manufacturing systems and salaries will vary according to experience from £4700 to £5500.

PROGRAMMERS are required with a minimum of twelve months COBOL and preferably some PLAN or ASSEMBLER knowledge. Salaries according to experience from £4400 to £5100.

Conditions of employment are very good including substantial holiday allowance.

More details and early interviews by telephoning:

DAVID FISHER on 0422 58231 (DAYTIME) or 0552 881887 (7 p.m. - 9 p.m.)

QRH
Computer Recruitment
Hull, 0422 58231
Clodens Road Mills, Hull

We have vacancies for experienced professional staff at various levels in our successful computer department.

SENIOR SYSTEMS ANALYST SYSTEMS ANALYST

Suitable candidates will be assured of an exciting and rewarding career in a progressive and expanding company.

Systems installed or planned for the future include: On-Line Enquiry, Point of Sale, Order Entry, Financial Modelling, Production Planning, Stock Management and Remote Data Entry. Applications are programmed in COBOL and packages used include: O-PAC, Accounting IV and Mark IV.

Competitive salaries and fringe benefits are offered and applicants should write or telephone for an application form to:

CM Hickson, Group Personnel Manager
HEPWORTH Limited, Cleypit Lane, Leeds LS2 8AP
Tel: Leeds (0532) 40205

Hepworth
TAILORING

Systems Programmer

£7,000 +

We represent a International manufacturing company, based in Scotland which has a positive and innovative approach to the development of software applications. One of the areas in which there has been significant progress is quality assurance and the company now wishes to

appoint a man or woman to head up an energetic quality assurance project team. The main areas of responsibility will be the provision of functional direction, technical guidance and co-ordination to a team of programmers engaged in the evaluation of new software projects. To ensure that the correct person is appointed, the company offers an extremely attractive remuneration package with the

salary level being determined by experience. Other conditions include a 35 hour week, pension and life assurance schemes and generous relocation assistance to this high amenity area of Scotland. (PA Personnel Services Ref: MV45/6409/CVW)

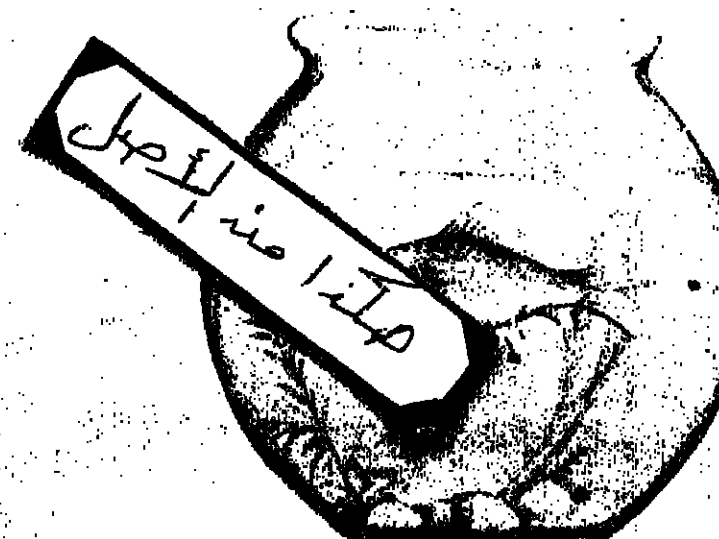
Initial interviews are conducted by PA Consultants. No details are divulged to clients without prior permission. Please send brief career details or write for an application form, quoting the reference number on both your letter and envelope, and advise us if you have recently made any other applications to PA Personnel Services.

PA Personnel Services

127 George Street, Edinburgh EH2 4JN Tel: 031-225 4481



Member of PA International



Are your horizons wide enough?

Are you going round and round in circles in a job with limited scope? Do you have skills and talents that can't be utilised where you are?

Can a Software House like Square One satisfy your needs - we'll try to help you find the answer at our next Open Evening in London. It will be an informal gathering where you can talk to some of the people who work for Square One and find out about the Company and its projects.

Come and have a chat over a beer and sandwich on Monday 15th May between 6pm and 8pm at 150 Regent Street. If you can't make it or need more information, then ring Anne Truelove on 02405 75231.

One
Open Evening

JBA

Systems Analyst

Midlands

c. £6,000

We have been retained by a well known international organisation to recruit a Systems Analyst to join the team developing commercial applications. The Company, with a very sophisticated installation, are currently working on on-line data collection and enquiry systems and plan to install real time applications using minicomputers.

The successful candidate will be an experienced systems specialist with a financial or manufacturing background including some time spent as a programmer. An ability to liaise with users is essential.

This is an excellent opportunity for a person with potential to advance with an expanding group. The salaries, which are negotiable, are above average and the Company offers excellent terms and conditions of employment, including assistance with relocation where appropriate.

Early interviews can be arranged in the Midlands.

In the first instance please contact:-

Jim Baker,
JAMES BAKER ASSOCIATES,
International Personnel Consultants,
16 Maddox Street, London W1.
Telephone: 01-491 4478.

P.D.P. MINI COMPUTERS BRISTOL

Due to continued growth both through new and existing contracts our clients Jensen Computer Systems, a software House specialising in the marketing and development of commercial "on line" systems for P.D.P. mini computers require the following:

Systems Support Analyst

To assist in the development and marketing of commercial software packages Jensen are particularly keen to recruit a Systems Support Analyst already having or with a specific interest in pre/post sales support.

Suitable applicants need not have had either mini computing or V.R.C. experience although this of course would be an advantage.

However, specific requirements will include previous design experience of commercial systems, implementation of financial systems would be of particular interest.

Salary - £6,250 + Expenses

Project Leader

Required at middle-management level, Jensen wish to appoint an experienced Analyst whose essential qualities will include both the ability of man management and the D.P. expertise to autonomously control commercial projects.

Although prior involvement within a mini computing environment would be desirable commercial design and implementation experience would be of equal importance.

Salary - To £8,750

Programmers

A requirement exists for various levels of Programmers with specific emphasis on senior Programmers having previously had "on line" experience utilising mini computers. Applicants already having DEC/D.G., RSTS, using BASIC+ or File Tab would be able to command higher salaries.

Serious consideration will be given to main frame or VRC Programmers wishing to retrain on minis.

Salary - £3-£5,500

SA Princess Victoria Street
Clifton, BRISTOL 8.

Sanderson
EXECUTIVE RECRUITMENT
TELEPHONE 0272 39302

Software Engineers

Advance and be recognised with Solartron

Our continued expansion programme and planned development have created excellent opportunities for Software Engineers to share the success story. It is desirable that applicants should possess a degree or equivalent in Engineering/Computer Sciences together with one/two years' relevant experience with an industrial programming environment.

The job function will entail the development and design of Assembler Code (initially PDP 11 and LSI II range) or high level language programming to produce general purpose programmes. Engineers are also sought to become involved in the support of current Software products.

We are based in pleasant country surroundings where housing, shopping and schooling are readily available. We offer competitive salaries and attractive company benefits which include non-contributory pension scheme, a really thriving sports and social club plus the opportunities to advance your career in a stimulating environment with our young vital company.

Make what is probably your best move so far by writing with brief but sufficient career details or telephoning to Tricia Davies, Personnel Officer, Solartron Electronic Group Limited, Victoria Road, Farnborough.

Farnborough (0252) 44433

Solartron

Volunteer
Scheme

Eurocom Data Limited

A member of the National Westminster Bank Group
EUROPE'S LEADING COMPUTER OUTPUT MICROFILM BUREAU ORGANISATION
LONDON-MANCHESTER-LEEDS-BIRMINGHAM

SALES EXECUTIVES

Circa £7000 + CAR

(Basic £4000-£5000 + Commission)

Eurocom Data Ltd. is a fast growing international Computer Output on Microfilm Bureau providing services through 5 centres in the U.K. and 6 further centres in Europe via Eurocom Data (Pty) Ltd.

Suitable candidates are likely to be successful VRC Salesmen who have a good working knowledge of Computer and Business Systems, and have consistently achieved Quota.

PROGRAMMERS

We need analysts and programmers to help us develop and sell this new technology. You will be required to give technical support to the sales team by following up their leads, conducting systems surveys and implementing programs and other part interfacing with the customers' mainframe computer, which offers experience in all the manufacturers' equipment operating systems.

You will have had at least two years' programming experience in COBOL and preferably an assembler language. A driving licence is essential.

We offer a starting salary of around £4,500, on a scale rising to £5,500 plus pension allowance and excellent fringe benefits after a qualifying period.

Applications to
The Personnel Manager
EUROCOM DATA LIMITED
3 The High Street, Rickmansworth, Herts.

COMPUTER STUDIES

A vacancy will exist as from September next for a

PERIPATETIC TEACHER

to be attached to a consortium of schools in Birmingham to act as a Head of Department of Computer Studies. The city has on-line computer terminals in most of its secondary schools and will be making rapid progress in the near future with the installation of micro-computers in education. This post is rated up to Salary Scale 4, dependent on qualifications and experience.

Applications by letter in the first instance to:

The Director
Birmingham Educational Computing Centre
c/o Matthew Boulton College
Hope Street, Birmingham B5 7EA

BIRMINGHAM
CITY COUNCIL

SENIOR SYSTEMS PROGRAMMER

To £8,000

A large and prestigious engineering firm in the Midlands and East of England are seeking to recruit a Senior Programmer. You should have at least 2 years' experience of IBM AS/400 or similar systems. You should also have a knowledge of PL/I, APL, BASIC or Data Base Management systems.

PROGRAMMERS-DATABASE SUPPORT

To £6,500

To test and evaluate the efficiency of prototype database designs, and have in the production of all new software projects. Applicants with a minimum of 2 yrs. COBOL preferably with some ASSEMBLER on 3801/390 under OS will be considered for the City position. You should have a good knowledge of database, including TOTAL on SYSTEM 2000.

FORTRAN PROGRAMMERS

C. £8,000

With at least 1 years' experience on either minicomputers or ICL 1900

ASSEMBLER PROGRAMMERS

C. £8,000

Experience on minicomputers to help in the production of system software for a multi-processor database system with communications. Vacancies also exist for those with experience of any assembly language. Commercial applications.

PLEASE TELEPHONE FOR AN APPLICATION FORM.

AMES
PERSONNEL
TELEPHONE: 01-767 0811

COBOL PROGRAMMERS

CROYDON

With a minimum of one year's experience. You will be based at the regional headquarters of an international company developing systems for a variety of European countries. The programmers will become part of a project team developing applications for all aspects of business activities. The working conditions are excellent with a salary commensurate with ability and experience. Luncheon Vouchers, four weeks' holiday and contributory pension scheme.

Telephone Personnel Department, 01-886 8844 for an appointment, or write to: iRohm & Haas (UK) Ltd., Lennig House, 2 Mason's Avenue, Croydon CR2 3NB.



Senior Analyst / Programmer

Iran Air requires a Senior Analyst / Programmer with a minimum of five years' programming and design experience on mini-computers, preferably IBM SYS/32, or financial applications. Based at Piccadilly the position offers much scope for travel and in the conversion and development of an on-line accounting package.

We offer a good competitive salary with many fringe benefits, working conditions are excellent and there are valuable travel privileges.

Please write with personal and career details to the Personnel Manager, Iran Air, 73 Piccadilly, London W1V 0QX. Telephone 01-491 3658.

IRAN AIR
The world's fastest growing airline.

APPOINTMENTS LIMITED

Computer Personnel Consultants

SYSTEMS & PROGRAMMING MANAGER

S.W. LONDON

£8500 + CAR

An international organisation with computer centres at home and abroad is seeking a Systems & Programming Manager for their installation in S.W. London easily accessible from the Surrey and Kent countryside.

Whilst the person appointed will be given complete responsibility for existing systems the main area of activity will be controlling small project teams developing a range of new applications from feasibility to successful installation.

Candidates should have a COBOL programming background coupled with a successful record of analysis gained in a commercial environment. Whilst experience in a similar capacity would be a distinct advantage applications from Senior Analysts able to demonstrate managerial skills and a successful record in the estimation, control and implementation of projects will also be considered.

In addition to first-class conditions of employment the Company offers an excellent commencing salary. A Company Car is provided.

24-hr. answering service
Please telephone for a confidential
discussion or write to:
30 Fleet Street London EC4Y 1AA
01-353 0981

REAL-TIME SOFTWARE ENGINEERS MICRO-PROCESSOR APPLICATIONS ENGINEERS

South Coast

Our client is an international company with a reputation for excellence in the development of real-time software applications. They are seeking experienced engineers to join their team in the South Coast. The role involves the design and development of micro-processor applications for a variety of real-time systems. Candidates should have a degree in a relevant field and several years of experience in the development of real-time software. The company offers a competitive salary and excellent benefits.

Thurloe Executive

30, Thurloe Place, London, SW7 2JQ
01-584 8476

PROGRAMMERS RENTOKIL LIMITED

EAST GRINSTEAD

Further programmers of varying experience required for mixed batch/on-line applications on ICL 1902T 64K disc/tape and ICL 1500 configurations using COBOL, PLAN and CDE.

Conditions of employment are generous with fringe benefits which include Contributory Pension Scheme, Profit Share, Free Staff Restaurant and Staff Discount. There is an active Sports and Social Club.

Situated on the Kent, Surrey and Sussex borders, East Grinstead offers pleasant and varied living and recreational facilities.

Salary up to £5,000 p.a.

Write or telephone: A. Appleby
Rentokil House
Garland Road
East Grinstead
West Sussex
RH19 1DY
Tel. E.G. (0342) 27171

OCR SCANDATA

SUPPORT ANALYSTS

Up to £6000 plus car

OCR Scandata is the UK subsidiary of one of the world's leaders in the exciting and rapidly expanding field of document reading and key-to-disk systems, particularly in banking and financial applications. We are now looking for self-starting Support Analysts (men or women) able to take an active technical role in:

- * pre-sales presentations, brochures, demonstrations
- * post-sales installations, special software development
- * customer training

Applicants should have significant business systems and programming experience, ideally on minis, and should be willing to travel to customer installations throughout Europe.

Please apply in writing or phone
European Support Manager
OCR Scandata Ltd.
Queens House, Holly Road, Twickenham TW1 4EW
Telephone: 01-891 0188

NORTH WEST THAMES REGIONAL HEALTH AUTHORITY REGIONAL COMPUTER SERVICE

SYSTEMS DEVELOPMENT OFFICER (Scale 23)

SALARY SCALE £6,700-£8,047 PER ANNUM (INCLUDING LONDON WHIPPING AND SUPPLEMENTS)

The North West Thames Regional Health Authority is seeking a Systems Development Officer to join its Regional Computer Service. The role involves the development and implementation of computer systems for the health service. Candidates should have a degree in a relevant field and several years of experience in the development of computer systems. The authority offers a competitive salary and excellent benefits.

Application forms and further particulars from the Regional Personnel Officer, North West Thames Regional Health Authority, 40 Southwark Street, London SE1 1SU (Telephone: 01-593 2011, Ext. 100) by 28th May 1978. Closing date for applications is 1st June 1978. Applicants must be UK citizens or have the right to work in the UK.

SOUTH LONDON/ CROYDON/SURREY

ARE YOU AMBITIOUS?
DO YOU WANT TO WORK
FOR A GROWING COMPANY?

Superdrug have rapidly expanded from 1 shop, employing 3 people to 75 shops, employing over 1,100 people, and has a continuing growth pattern. Our Computer Department is also growing to cope with this expansion. We now need a No. 2 for our Department. This person should be young and have RPGII experience. The department itself is still quite small so there is complete involvement with the work on our System 3/10 and plenty to prepare for our System/34 which is on order. The salary will be around £5,000 per annum.

Please contact:
Mr. Howard
SUPERDRUG STORES LIMITED
Felnex Trading Estate
190 London Road
Wallington, Surrey, SM6 7EG
Tel: 01-669 2151

Computer Systems Professionals

Rank Xerox, one of Europe's leading companies in the field of office automation and information systems, is seeking three computer systems professionals to join its team. The role involves the design and implementation of computer systems for the office environment. Candidates should have a degree in a relevant field and several years of experience in the design and implementation of computer systems. Rank Xerox offers a competitive salary and excellent benefits.

Systems Consultant

c. £7,000

For this position we need a highly motivated self-starter who will respond favourably to the challenges of working in a dynamic and accountable environment.

The successful applicant will have significant experience in the planning, design and implementation of computer systems which will perform a key role in the management of multinational organisations.

These systems will utilise a large network of 3270/3275 and high speed printers on-line to an IMS Database in full 3270/3275/3275 environment.

The position demands significant business experience, including with analytical skills. Experience of engineering, building, material and change control applications, along with the design, development and testing of systems, will be an advantage. The successful candidate will be provided with training.

Applicants should be motivated to degree level, preferably in an engineering/technical discipline, and have at least 7 years relevant data processing experience.

Systems Analysts

c. £5,500

Two Systems Analysts are required to work on Engineering Design and Financial Management reporting systems and will be expected to bring a wide range of skills to the job including system design, programming and liaison with users and business.

Action

If you are interested in any of the above positions, please contact the Personnel Officer, Rank Xerox, 100 Southwark Street, London SE1 1SU (Telephone: 01-593 2011, Ext. 100) by 28th May 1978. Closing date for applications is 1st June 1978. Applicants must be UK citizens or have the right to work in the UK.

RANK XEROX
ENGINEERING GROUP

B

WEST YORKS

ANALYST/ PROGRAMMER

to £3,500

A programmer with approx. 2 years' experience, seeking chance to move into systems. Total involvement in a wide range of applications, including liaison with users, low level language an advantage.

SENIOR SYSTEMS ANALYST

TO £5,500

A key position in an expanding department control of small enthusiastic team. Major planned developments include warehouse/despatch, product explosion and management systems.

SYSTEMS ANALYST

to £4,500

Self-starter with ability to use own ability. Full involvement in analysis design and implementation of major new systems. Real time systems experience an advantage.

THE BENEFITS

Small team, make own decisions.
Promotion from within.
Involved in a wide range of projects.
Real time.
Subsidised BUPA Self/Wife.
Subsidised canteen.
Relocation assistance.

PLEASE CONTACT

73/75 ALBION STREET, LEEDS 1
PHONE: IRENE ROGERS 0532 36622

INTERVIEWS CAN BE HELD LOCALLY

PLEASE RING OR CALL IN - WE ARE HERE TO HELP YOU IN '78

BERTRAM COMPUTER PERSONNEL

LEEDS
0532 36622SHEFFIELD
0742 738783MANCHESTER
061-236 4593BIRMINGHAM
021-643 4433COVENTRY
0203 52171

A Division of BERTRAM PERSONNEL GROUP LTD

JBA

Development Programmers

Hertfordshire up to £7,000 +
The software development group of this highly progressive computer terminal systems manufacturer are expanding their team of programmers. The work involves long-term development of operating software incorporating data communications networks and micro processor technology. A sound knowledge of ASSEMBLER and one other language is essential. Successful candidates will enjoy a delightful working environment, an interesting mix of practical involvement and the definite possibility of career progression in the group.

Generous relocation package is offered together with up-market salary.

Contact: Mike Creamer

Software Programmers - Minis/Micros

Herts to £7,000

This is an exciting opportunity for experienced software professionals to join an expanding organisation which specialises in the application of computers to industrial process control and automation. Ideally applicants should have more than a casual knowledge of software in the areas of Compilers, Assemblers, Interactive Languages, Communications and Real-Time operating systems. This is a high technology environment, with a customer base ranging from petro-chemical, pharmaceutical, and steel companies to public authorities.

Excellent salaries and conditions of employment are offered and relocation expenses will be paid where necessary.

Contact: Margaret Stevens

Analyst/Programmers

Midlands c. £5,000

A large international manufacturing organisation is expanding its data processing department and has a requirement for two Analyst/Programmers to join the development group.

Candidates must have at least two years experience as a programmer, preferably with COBOL on a mainframe, and have been involved with the design of commercial systems. Knowledge of on-line or real-time techniques would be an advantage.

The company can offer realistic salaries and a real career opportunity.

Contact: Jim Baker

For further information on any of the above vacancies please contact the appropriate consultant. If your qualifications do not match the above positions but you are seeking other opportunities please contact us anyway.

JAMES BAKER ASSOCIATES, International Personnel Consultants
16 Maddox Street, London W1. Tel: 01-491 4478

Technical Author

Hertfordshire up to £7,000 +
Our client, a U.S.A. manufacturer of intelligent terminal systems and associated equipment, seek an experienced Author to join their documentation group, which provides comprehensive software manuals.

The successful candidate will be one who can work without supervision, enjoys responsibility, and whose technical competence commands respect. The position would ideally suit a programmer or analyst with a flair for documentation and an interest in technical communication.

Friendly working environment, excellent relocation package, and good career prospects.

Contact: Mike Creamer

Systems Analyst/Project Leader

North London c. £5,500

Continued expansion and development within our clients organisation has created a vacancy for a capable Analyst to join a product development team. This small but highly motivated team has total responsibility for the design, implementation and support of a major Accounting package. Applicants should have a PL/I programming background and have been involved with systems development for some three years. Experience of commercial applications would be an advantage. This is a key appointment within a well established bureau therefore salary will reflect the importance of the post.

Contact: Margaret Stevens

Trainee Customer Support Specialists

All areas up to £5,000

Our client, an international computer manufacturer, has opportunities for staff to join a training scheme to become Customer Support Specialists. The course which will be in London includes software applications and operations activities, is expected to last six months and will have a heavy practical content.

Applications are invited from people with about nine months programming experience preferably in a commercial environment (probably using COBOL). A business studies qualification such as I.N.T. or degree in economics, law, business studies, systems analysis, would be an asset.

This is an exciting chance to join a professional organisation and receive first class training. Subsequent assignments will be available in most parts of the UK. Excellent salaries and large company benefits.

Contact: Jim Baker

MARTINS COMPUTER SERVICES

The D.P. Recruitment Specialists for the Midlands/West Country areas

MANAGEMENT

COMPUTER MANAGER required by our client and engineering group to implement and control the installation of a Honeywell 62 Series computer. Practical experience with engineering production and financial applications essential. Area: South. Salary up to £7,500. Ref. M18.

SUPPORT MANAGER for mini computer manufacturer. At least 5 yrs. in commercial systems. Previous mini support experience an advantage. Area: Birmingham. Salary circa £6,000 plus company car. Ref. M13.

SYSTEMS AND PROGRAMMING MANAGER. Must be experienced with IBM mainframe and mini hardware. Languages: Assembler and Cobol, using batch and real time. At least 6 yrs. in DP. Area: Birmingham. Salary to £7,000. Ref. M14.

COMPUTER MANAGER required for a systems mini installation with on-line terminals. At least 1 yr. basic plus under RST. Some supervisory experience an advantage. Area: Birmingham. Salary circa £4,500.

PROJECT LEADERS/ SYSTEMS ANALYSTS

PROJECT LEADER at least 4 years' plus experience in Commercial Systems. On-line experience an advantage. Area: Coventry. Salary to £9,000. Ref. SA24.

PROJECT LEADER. Responsible for Group Data Processing Manager, at least 2 years' Production Planning and Control Systems, plus a formal programming background in Cobol or RPG. Experience in a small programme and terminals required. Area: Worcester. Salary to £5,500. Ref. SA20B.

SENIOR SYSTEMS ANALYSTS. At least 5 years in D.P. Preferably experienced on ICL hardware developing Real Time. Area: Leicester. Salary to £5,500. Ref. SA122.

SYSTEMS ANALYST, at least 3 years' in Programming and Analysis. Area: Bristol or Somerset. Salary to £6,000. Ref. SA121.

ANALYST/PROGRAMMER. 2 years' plus experience in Cobol and Plan plus some Analysis. Area: Nottinghamshire. Salary: £4,500. Ref. SA130.

SENIOR SYSTEMS ANALYST. Required by mainframe manufacturer for pre- and post-sales work. At least four years in Commercial systems including a working knowledge of Cobol or RPG 2. Area: Midlands. Salary: £5,750 plus generous car allowance and expenses. Ref. SA128.

SENIOR SYSTEMS ANALYST, at least 4 years' plus experience in Commercial Systems with knowledge of Cobol or Mini Computer Languages. Area: Birmingham. Salary to £8,000. Ref. SA128.

SENIOR TECHNICAL ADVISOR required by Major Mainframe manufacturer. At least 5 years' experience with on-line and off-line systems. Area: Birmingham. Salary to £8,000. Ref. SA105.

TECHNICAL SUPPORT PROGRAMMER. Must have communications experience on ICL hardware. Area: Bristol. Salary: £5,500 plus bonus. Ref. P263.

SENIOR COMPUTER AUDITOR. At least 5 yrs in DP. Practical experience in auditing with a background of systems and programming. An accountancy qualification an advantage. Area: Birmingham. Salary circa £8,000 plus car. Ref. M519.

PROGRAMMER/ANALYST. At least 3 yrs. working in Cobol. Area: Nottingham. Salary: £5,000. Ref. P261.

SENIOR PROGRAMMERS/ PROGRAMMERS

PROGRAMMER/ANALYST, at least 2 years' experience in Cobol and Assembler plus knowledge of at least 1 Mini Language. Area: West Bromwich. Salary to £5,000. Ref. M183.

CONSULTANT PROGRAMMER required by a Time sharing bureau. Degree required plus experience of programming in APL. Area: Midlands. Salary: £4,500 plus car. Ref. P242.

PROGRAMMER/ANALYST for Vantech Datapoint Mini. 1 year plus experience in Databases, RPG II or a similar language. Area: Birmingham. Salary: £4,000. Ref. P235.

PROGRAMMER required by a Birmingham Finance House. 1 year plus Cobol. Area: Birmingham. Salary range £3,500-£5,500. Low interest mortgages and loans available. Ref. P234.

PROGRAMMERS. 2 years' plus experience in Basic+ or experienced in other languages and willing to be re-trained in Mini Languages. Area: Nottingham. Salary: £4,000-£5,400. Ref. P232.

SUPPORT SPECIALIST required by Mini Manufacturer at least 1 year experience in Assembler. Area: Birmingham. Salary to £5,000. Ref. P227.

PROGRAMMER. 1 year plus PL/I or Assembler, knowledge of Circa or IMS an advantage. Area: Birmingham. Salary to £4,500. Ref. P205.

PROGRAMMER/ANALYST. 2 years' plus experience in Cobol. Area: Huddersley. Salary to £4,000. Ref. P164.

LEAD PROGRAMMER. At least 4 years' experience in IBM Cobol and Assembler using DOS/VS with CICS. Area: Bristol. Salary: Neg. Ref. P189.

PROGRAMMER. 1 year plus Cobol. Area: Northamptonshire. Salary: to £3,500 plus subsidised mortgage. Ref. P166.

PROGRAMMER. 2 years' plus Cobol, preferably IBM. Area: Leicester. Salary to £4,500. Ref. P175.

PROGRAMMER/ANALYST, at least 3 years' experience in Cobol, Fortran or Basic, plus On-line experience. Area: Birmingham. Salary to £5,000. Ref. P160.

ANALYST PROGRAMMER, at least 2 years' programming in Basic+ or Dilog or RPG II. Area: Suffolk. Salary to £5.5K. Ref. P32.

CHIEF PROGRAMMER, responsible for a small team of programmers. At least 3 years' Cobol. Area: Leicestershire. Salary £4,750. Ref. P245.

OPERATIONS

CHIEF OPERATOR, at least 8 years' experience on IBM 360/370 range under OS, VS, MFT, CICS and RJE Terminals. Area: Staffordshire. Salary to £5,500. Ref. P100.

NETWORK OPERATOR, at least 4 years' experience in IBM hardware, knowledge of data communications and transmission with RJE network. Area: Worcester or Staffs. Salary: Neg. Ref. 092.

OPERATIONS SUPERVISOR. Days only. At least 2 yrs. experience on 370 DOS/VS including JCL. Age 24 yrs plus. Area: Wolverhampton. Salary £4,500. Ref. 0118.

OPERATIONS ANALYST. Good knowledge of IBM operating systems including JCL. At least 1 yr. in a similar position. Area: Staffs. Salary circa £5,000. Ref. 0100.

SENIOR OPERATORS & OPERATORS with at least 2 years' experience on IBM 370 under OS, VS or MVS. Area: Wolverhampton. Salary range Ref. 012.

DATA 100 OPERATORS, at least 12 months' experience in Operating a Terminal or midrange. Area: Birmingham. Salary to £4,000. Ref. 0126.

IBM COMPUTER OPERATORS required for following areas: Cheltenham, Redditch, West Bromwich, Coventry, Grantham, Birmingham, Leicester, Wolverhampton. Salary range £3,400-£4,000.

ICL COMPUTER OPERATORS. Birmingham. Stoke Newington. Coventry. Wolverhampton. Salary range £4,000-£4,000.

HONEYWELL OPERATORS. Birmingham. Wolverhampton. Cheltenham. Salary range £3,000-£4,000.

GRADUATES

Are you a graduate this year? If so we have a number of clients who are recruiting Graduate Programmers and Analysts for the Midlands Areas. Salary range £3,000-£4,000.

We have many more D.P. positions on our register in all areas of the Midlands/West Country.

Contact: Graham Aston, M.E.C.I.
MARTINS COMPUTER SERVICES. First Floor, Western House, Opposite Albany Hotel, Smallbrook, Queensway, Birmingham B5 4HQ
Telephone 021-643 2111. 24-hour answering service. Evenings and weekends 021-454 0331.

We are now able to interview until 6.30 p.m. and Saturday morning by appointment.



WYRE BOROUGH COUNCIL
Borough Treasurer's Department
Appointment of
SENIOR ANALYST/ PROGRAMMER
Salary S.O. 1/2-£4,759-£5,512
Inclusive of Supplements

Applications are invited for the above post which involves with several years' experience and a programming background including Cobol and/or PL/I. The successful applicant will take responsibility for systems development from conception, and must be capable of leading a team of analysts/programmers and negotiating with representatives of user departments. Local Government experience is desirable but not essential. The Council operates an ICL 2903 computer with DOS/VS/30's DDBS and a VDU. The Council would be prepared to consider the provision of housing accommodation and assistance towards the cost of removal expenses will be given at appropriate rates.

The Borough of Wyre is situated on the Fylde Coast and includes two sea-side resorts and a large rural area of a scenic beauty including the Ribblesdale Fells. The Borough Treasury is at Fleetwood.

Applications stating age, education, qualifications and experience and quoting two referees should be forwarded to the Borough Treasurer, P.O. Box 1, Town Hall, Fleetwood by 10th May, 1978.

Computer Programmer

c. £4,000 p.a.

Our client, one of the world's leading manufacturers of diesel engines based in the Greater Manchester area, requires an additional Programmer for their newly installed ICL 2903 Computer.

Currently being used for salaries, sales and purchase ledger work, the Company now wish to utilise the Computer fully on production and quality control. A Senior Organisation and Methods Manager will be responsible for planning and co-ordination to this end.

Applicants, who must have a minimum of 2 years' experience in industry, or service to industry with Cobol language, preferably ICL 2903, will work as part of a small team consisting of Senior Programmer and one Trainee.

Usual established company benefits including pension and sickness scheme.

Please contact: June Standish
(061) 235 5401, ext. 52

PER
Professional & Executive Recruitment

Applications from both men and women are welcome.

MANAGER— COMPUTER SYSTEMS DEVELOPMENT

Ampex, a worldwide leader in magnetic recording and storage technology, needs a Manager of Computer Systems Development (male or female) for its European Operations.

In this position you will be responsible for the selection of minicomputer hardware for Ampex Regional Sales Offices and development of software for sales/order entry and financial reporting and control systems.

Ideally your background should include:
— Experience with either IBM, Data General, DEC or Hewlett-Packard Minicomputers
— Experience in Cobol Programming
— Familiarity with Data Communications Protocols.

Initially you will spend several weeks at Corporate Headquarters in California. Your permanent base will be in Reading, England with extended assignments on the Continent.

We offer an excellent compensation package. Please submit your resumé with salary requirements to:

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RG2 0QR

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Career Specialists and Consultants for
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OPERATORS/SHIFT LEADERS
To £4000 Inc.

Here is a very nice job. A 2-shift system having ICL 1900 equipment using GIL. Vacancies exist for 2 Operators and a Shift Leader. A nice firm involved in Consumer Products. Active S.S. Club, cheap BAR and restaurant.
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OPERATORS
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If you are into DOS/VS then this 2-shift system, no nights, will be attractive to you. They provide a high basic salary and 4 weeks' hols. and you will work for an international company.
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SNR. OPS/OPERATORS
£4000 to £5500 Inc.

A major IBM 370/OS user is offering really excellent perks including high salary and paid overtime plus paid removal expenses. You must have a minimum 1 yrs. OS experience though.
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OPERATORS
£4000 Inc.

Experienced ICL GIL & GIII operators are urgently required by this go-ahead commercial organisation. Perks include 21 days hols, Flextime, subsidised canteen and a normal 3 shift system.
CW 19/3 Patricia.

SYSTEMS ANALYST
To £6500

A major manufacturing company is involved in expansion plans within their D.P. department and requires experienced commercial analysts especially those with real-time application involvement. Although ICL equipment is used your actual machine experience is unimportant. This firm offers generous relocation expenses and 4 weeks' hols. etc.
CW 19/7 Annette.

SYSTEMS ANALYST
To £8500

NR. WOKINGHAM
A major user of large Univac equipment with an exciting real-time Database application to develop requires comparable experienced applicants. Usual large company perks and relocation expenses, etc.
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To £260 p.w.

Apply NOW for the latest vacancies. IBM, HONEYWELL, DEC & ICL programmers welcome. Earn a summer holiday paid break plus an attendance BONUS. Ask for the Contracts Officer on 01-995 5485.

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£6000

A small but progressive international insurance company is actively seeking an Analyst Programmer who wishes to extend their present 2 yrs. + IBM COBOL experience by learning the useful MK IV language. Excellent career prospects + usual company perks.
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PROJECT LEADER
c. £6300

SLOUGH
If you like taking charge then here is an ideal opportunity to extend your supervisory experience, and build upon your IBM COBOL knowledge in this DOS/VS, CICS, DL/I installation. This major Industrial organisation offers an active s.s. club 4 weeks hols. and a NON C.P.S.
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To £6500

MID ESSEX
A major manufacturing company is involved in expansion plans within their D.P. department and requires experienced commercial analysts especially those with real-time application involvement. Although ICL equipment is used your actual machine experience is unimportant. This firm offers generous relocation expenses and 4 weeks' hols. etc.
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SYSTEMS ANALYST
To £8500

NR. WOKINGHAM
A major user of large Univac equipment with an exciting real-time Database application to develop requires comparable experienced applicants. Usual large company perks and relocation expenses, etc.
CW 19/8 Annette.

SYSTEMS PROGRAMMER

City Negotiable

A large and highly respected financial Institution is seeking a capable and imaginative OS or OS/VS Systems Programmer to work in their City based installation. They are using two IBM machines — a 370/148 and a 370/158, running under OS/VS in both Online (Data Base) and Batch Processing modes, hence a background in either discipline would be equally acceptable.

The ideal candidate would have some operating experience, with a general programming background, preferably in ASSEMBLER or PL/I, as well as a minimum of around 18 months in OS or OS/VS Systems Programming. Since there is a heavy commitment in the Stocks and Shares field some exposure in this, or in any other financial area, would be an advantage.

Salary will be totally dependant upon ability and experience and will not prove a limiting factor for the right person, so if your experience tallies in any way please contact us at once.

PL1 PROGRAMMERS

City
A major financial organisation needs programmers with 2 years good commercial experience to join their expanding DP department in the city. They currently operate a twin IBM 370/138 system, running under DOS/VS, and have a comprehensive communications network, so any knowledge of CICS would also be an advantage.

In addition to a competitive starting salary and excellent career prospects, the company offers interest free Season Ticket Loans; free Life Insurance an Annual Bonus scheme, and a 3% Mortgage.

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London and the Home Counties
We have outstanding opportunities for all levels of Fortran Programmers with a background in any of the following:—
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TECHNICAL SUPPORT
GRAPHICS
PETROCHEMICALS
OPERATIONS RESEARCH
FINANCIAL APPLICATIONS

Positions exist within well known software houses, bureaux, manufacturers, and international engineering organisations; all offering good salaries and benefits combined with excellent career prospects.

Reference SD19/6

SENIOR SYSTEMS ANALYST

West End £6000 to £7300

An opportunity has arisen for an experienced and articulate Systems Analyst to progress into a more demanding and responsible position, leading and co-ordinating the work of a team of three other analysts.

The installation comprises an ICL 1903 machine running under GEORGE II, and an extensive Real Time system utilising DRIVER and COMMS MANAGER. Experience in any of these areas would be highly desirable, as would a programming background in either COBOL or PLAN.

You should have at least 4 years total DP experience, 2 years of which should be in Systems Analysis, and during this time you ought to have installed 2 major systems. The work will cover many different projects, will involve a wide area of systems and applications, and will give a great deal of experience and satisfaction. Altogether a position with plenty of scope, challenge and rewards, the high salary reflecting only a part of the total package.

COBOL PROGRAMMERS

West End
One of the world's largest insurance companies situated in the heart of the West End has several vacancies for programmers with a minimum of 18 months' experience. These positions would be ideal for programmers who wish to progress shortly into Systems Analysis.

The hardware in use is an IBM 370/168 running under OS/VS, with a large telecommunications network, and thus will provide valuable experience in this lucrative field.

The company offers a high starting salary, and a first class benefits package which includes Flextime, free lunches, a Non-Contributory Pension Scheme, plus a Subsidised Mortgage.

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Central London
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Positions exist at all levels from Programmers and Analysts through to Consultants, Assembler or Fortran experience in any of the following areas:— Message Switching, Production Control, Military Systems or Communications, gained on Minis or Micros would be suitable.

An ability to meet and communicate with clients, an outgoing personality and the willingness to pick up new machines and languages is essential.

If you believe that you could comply with the above specifications and would like a rewarding position with an excellent salary and prospects, ring us immediately.

Reference SD19/3

Datascene Recruitment Ltd
Sceptre House
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01-439 7871
24 hour answer phone

RESERVATION SYSTEMS

T/P — DATABASE — MINIS

PROJECT LEADER

(LONDON or BRISTOL) to £7,300

SENIOR PROGRAMMERS

(BRISTOL) to £5,800

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A PROJECT LEADER is required to develop and implement a system for a client in Central London. It requires excellent Man/Machine interface, and yet must be capable of high transaction throughput in a 100% secure environment.

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Initially please contact ANDREW SANSON on 01-878 7861.

PSL 328 Upper Richmond Road West
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Telephone 01-878 7861

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Salary S.O. 1/2-£4,759-£5,512
Inclusive of Supplements

We are a well established specialised engineering company with a wide range of precision, optical and electronic products.

We are looking for a Programmer/Analyst to work on Production Control and Bill of Material Systems. The work will involve collaboration in the design and programming of these systems or in the selection and implementation of appropriate packages.

Candidates should have some experience of Factory Control Systems, a knowledge of RPG II and the ICL 2903 or 1900 is desirable.

Full details of age, education and experience should be submitted in writing to:

The Personnel Manager
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SALARY circa £5,500

required by a rapidly expanding subsidiary of a public company

Requirements are:
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We offer:
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SYSTEMS CONSULTANTS**

SYSTEMS ADVISERS

**OPPORTUNITIES FOR TRAVEL
THROUGHOUT THE UK**

TELEPHONE OR WRITE TO US NOW TO ARRANGE FOR AN INTERVIEW

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SPECIALISTS IN DP AND EXECUTIVE RECRUITMENT

**THIS IS YOUR CHANCE TAKE A POSITIVE STEP
FORWARD IN YOUR CAREER DEVELOPMENT**

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IF YOUR EXPERIENCE MATCHES THE FOLLOWING CRITERIA, THEN YOU SHOULD CONTACT US AND IN DOING SO TAKE THE FIRST STEP FORWARD IN MAKING ONE OF OUR APPOINTMENTS YOURS.

- (a) PROGRESSED THROUGH PROGRAMMING INTO A SYSTEMS ROLE OR MOVED INTO D.P. FROM A PROFESSIONAL BACKGROUND.
- (b) EXPERIENCE WORKING WITH MEDIUM TO LARGE COMMERCIAL APPLICATIONS.
- (c) BEEN USED TO WORKING WITH MEDIUM TO LARGE COMPUTER HARDWARE OR HAVE EXPERIENCE IN THE DISTRIBUTED PROCESSING ENVIRONMENT.
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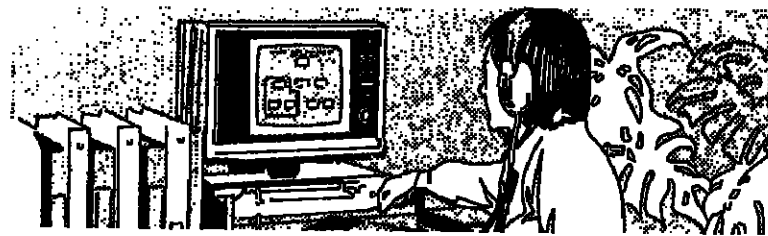
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IN LONDON OR THE SOUTH AS OUR CLIENTS WISH TO MAKE EARLY DECISIONS

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NOW, you may be involved in DP Training, Consultancy, Lecturing, Systems Engineering, Marketing or as an Analyst, Programmer or Shift Leader and wondering what your next step should be in your career development.

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performance in d.p. installations

● Professional service-oriented team environment.

● Personal development in the latest DP and training technology.

● Initial training in the U.K. and U.S.A. and later management and overseas opportunities.

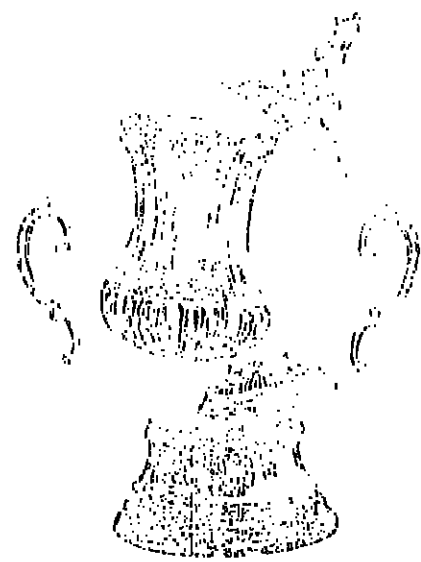
● Change to a career in marketing with rewards related to ability.

Marketing Consultants: D.P. training Basic to £7,000 plus bonuses plus car: all U.K. areas

BIS-Deltak is a young international company and part of the £5 million Business Intelligence Services D.P., management and software consultancy group. It has six years success in selling a comprehensive in-company training skills library using text, audio and television. You will be aged 24 to 30, probably with a degree or similar qualification. You will be highly motivated and disciplined and able to communicate well both in writing and orally with all levels in the D.P. department. You will enjoy analysing training needs in detail and implementing proposals to

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17-23 Stamford Street,
London SE1 8NG
Tel: 01-838 9511



How many piece parts in the FA Cup?

01-686 9693 (24 HOUR ANSWERPHONE) | 061 236 2419 FAULKNER HOUSE,
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CAPP ASSOCIATES
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Computing
Services
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THE DISTILLERS COMPANY LIMITED YEAST AND FOOD DIVISION

Computer Programmer

A computer programmer is required at the Division's Research and Development Laboratory, 100, Victoria Road, Central Scotland. The computer department operates a timesharing system using an IBM 370/158 and a 370/158 on projects involving the storage and analysis of both laboratory and factory data and on other projects.

Applicants should have at least SCE 'H' level mathematics at GCE. A level mathematics is an equivalent mathematical qualification and have a minimum of two years' programming experience. A competitive salary will be offered to the successful applicant.

The department is located in an attractive rural setting at the foot of the Pentlands, with easy access to the recreation areas of the Highlands and the universities of Glasgow and Edinburgh.

The Company offers a comprehensive benefits scheme including home costs, holiday pay, sick pay and flexible holidays.

For further details and an application form please write to:

The Yeast Research Manager
The Distillers Company Limited
Yeast and Food Division
Glenochil Technical Centre
MENSTYRE
Clackmannanshire FK11 7BB
Scotland

UNIVERSITY OF
NEWCASTLE UPON TYNE
NORTHUMBRIAN UNIVERSITIES
MULTIPLE ACCESS COMPUTER

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Applications are invited from graduates to join a team of programmers working with two linked IBM computers, a 370/158 and a 370/158. Two operating systems are used: MVS, and the Michigan Terminal System. Opportunities exist for working on the basic operating system, controlling graphics development or enhancing communications facilities. Applicants should have a good knowledge of IBM systems and an understanding of the needs of a community of research workers.

The appointment will be made on one of the following scales according to age, qualifications and experience: Scale 1A £2,600-£3,176 or Scale II £3,730-£7,308 per annum. Membership of the appropriate University superannuation scheme will be required.

Further particulars may be obtained from the Registrar, The University, Newcastle upon Tyne, NE1 7RU, with whom applications (3 copies), together with the names and addresses of three referees, should be lodged not later than May 31, 1978. Please quote reference CV11/8.

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Beds up to £4650+overtime ICL 1900 and 2900 Installation

Due to exceptional growth, our client will be installing an ICL 2960 system in August to operate alongside a 192K 1903T. This means new opportunities and first-class career development prospects for ambitious young operators.

The operating system is GEORGE 2+ which will also be run on the 2960 using DME, Maximop and Dateview are supported for terminal users during the daytime.

A three shift system operates during the week with ample opportunity for overtime during the weekend.

The Company

Our client is a medium sized engineering company employing 2,000 people. They have modern premises in rural Bedfordshire, not far from the M1 motorway and easily accessible from population centres such as Luton and Bedford. Housing is attractive and plentiful in the area and the company will provide generous assistance with relocation costs where appropriate. Please telephone Sylvia Walton, or write to:



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Due to further expansion, experienced operators are required to join our efficient and hard-working Operations Team.

The configuration consists of two large ICL System 4/72's, 24 EDS80's, 14 MTU's, 4 printers, 2 card readers, 30 local VDU's and 4 RJE's.

Ideally, applicants should have 2 years' experience operating either System 4 or IBM 360/370 machines.

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Our office is located very close to the main-line station (London 43 minutes and Brighton 15 minutes).

Applications to:
Alan Merfitt
Operations Manager
COMPUTER DATA
PROCESSING LTD.
Oakfield House
Perryman Road
Haywards Heath
Sussex
or telephone:
Haywards Heath 59188

Snamprogetti Ltd

Computer Programmer

Snamprogetti are an international leader in petro-chemical contracting with its U.K. base in Basingstoke. Following continued Company expansion there is a vacancy for a programmer to join our existing small computer team.

Applicants would be required to operate a data entry terminal to an IBM 370/158. They should have a good knowledge of IBM JCL and at least two years' experience in Cobol or PL/1. Knowledge of Fortran and/or Assembler would be an asset. The primary function would be to modify and develop commercial systems. However a willingness to interchange within the team as necessary would be desirable.

This is an opportunity offering negotiable salaries, paid overtime and an attractive pension scheme. Free membership of BUPA. Relocation assistance.

Applications to Personnel Manager, Snamprogetti Limited, Telford House, Houndmills, Basingstoke, Hants. Telephone: Basingstoke 61212

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Circa £4,000 + Car
+ Bonus

We seek an alert young person, 24-34, from an operations/programming background to sell our business forms in City plus North London.

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O.E.M. SALES MANAGER -EUROPE

Quota Earnings £18000+ Car
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Surrey

OUR CLIENT is a subsidiary of a profitable and leading U.S. based O.E.M. supplier of computer peripherals and small business systems with a world wide turnover of some \$200 million.

THIS KEY APPOINTMENT offers the opportunity for an experienced sales professional to lead a successful and substantial sales team already established in the U.K. and Europe at an exciting time in this Company's development. The position is based in Surrey.

APPLICANTS must be able to demonstrate a substantial management track record in O.E.M. / small business system sales gained in an environment where sales opportunities have been both created and negotiated to a profitable conclusion with major U.K. and European companies. The ability to speak German and/or French will be a considerable advantage. Age 32/42.

EXCELLENT TERMS OF EMPLOYMENT include 4 weeks holiday and unusually generous sickness and pension scheme.

To discuss this EXCITING APPOINTMENT further, applicants should write, enclosing career details to date, quoting ref: CWO81, or telephone David May, Advising Consultant on 01-486 8991.

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102 Blandford Street, London W1H 3HH Telephone 01-486 8991

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Experienced up to £7500

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Main responsibilities will consist of developing customer applications systems based around our TMS 9900 and TMS 1000 families of microprocessors. This will be undertaken largely at our Bedford plant, using the latest generation of hardware and software tools. However, travel around Europe and to the U.S.A. is highly probable. Success will lead to the possibility of transferring to similar jobs in Dallas and Houston.

Candidates with a degree in Electronics, Computer Science, Mathematics or similar relevant subject, will be highly self-

motivated, able to communicate at a technical level with customers, and dedicated to delivering the right software at the right time. Experience of MPU work will be an asset but is only required for the more senior positions.

Salary for experienced engineers will be negotiated up to £7500 dependent on ability and expertise; salaries for new/recent graduates will be from £3500. For all posts, there is a salary review after 6 months service. First class benefits apply and include generous assistance with relocation expenses, where appropriate, pension plan, health insurance, profit sharing, assistance with obtaining mortgages, subsidised restaurant and lots more.

For an application form, please write or ring, quoting ref. no. FY/301, to Ann Stevens, Personnel Department, Texas Instruments Ltd., Manton Lane, Bedford. Tel: Bedford (0234) 67466, ext. 3442.



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SCHOOL OF MATHEMATICS,
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SALARY: An experienced lecturer with the above qualifications and experience may expect a salary of £13,000-£15,000 per annum (plus pension and other benefits). Applications should be sent to the appropriate postgraduate office.

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PART-TIME LECTURERS

required for afternoon and evening classes starting in September 1978 in:

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Applicants should have 4-6 years' experience and be employed by a University or College of Higher Education. Applications should be sent to the appropriate postgraduate office.

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That's how we feel about you, round at Real Time Mini's place. You're enough to get us to get you anything up to £10k. Or even more. (Depends what you've been up to lately).

Our clients — manufacturers, software houses and users alike — are saying: "You got them before, so now do it again!" Which we will.

You could be scientific or commercial. Analyst or programmer or management.

With manufacturer or software house experience — one year, two years: five, ten...

With Assembler or higher. And with degree or lower — but not too low.

Sex: male, female, you name it. Locations: London and Home Counties. If you're not there already, move.

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Computer Personnel Consultants

PROGRAMMING MANAGEMENT

LONDON To £7,100 + relocation

Our client is a well-known manufacturing organisation with offices in London, convenient for commuting from North East and South East London, Essex or North Kent.

The installation houses an IBM 370/138 under DOS VS which supports a teleprocessing network using SHADOW. There are on-line, real-time and database systems in operation and further development utilising these techniques is planned.

We are now seeking an experienced DP professional who has the ability to manage, motivate and train the staff under their direction.

Suitable candidates will have a programming background together with some knowledge of IBM hardware; it is likely that they will have used one high and one low level language. The most important quality is the ability to manage, and technical training will be available as required.

In addition to a competitive salary the position carries an attractive benefits package. Generous relocation expenses are available where applicable.

24-hr. answering service
Please telephone for a confidential discussion or write to:
30 Fleet Street London EC4Y 1AA
01-353 0981

SENIOR ANALYST/PROGRAMMER (c. £5750) SENIOR PROGRAMMER (c. £5250) MITCHAM, SURREY

A leading manufacturer and distributor of surgical instruments and related products requires professional EDP staff for its Head Office computer installation based at Mitcham, Surrey.

Currently developing a new ON-LINE ORDER PROCESSING SYSTEM ON AN ICL 2904, our client can offer many opportunities for programmers with COBOL experience — not necessarily ICL — to broaden their knowledge by working in small teams which have responsibility for all aspects, from initial investigation to final implementation.

SENIOR ANALYST/PROGRAMMERS should have at least 4 years' experience in commercial systems and be capable of developing new systems from feasibility to implementation, working closely with user departments.

SENIOR PROGRAMMERS should have had at least 3 years' programming experience preferably at the supervisory level.

Call or write: Colin Shingleton

Meteor Computer Consultants Ltd.

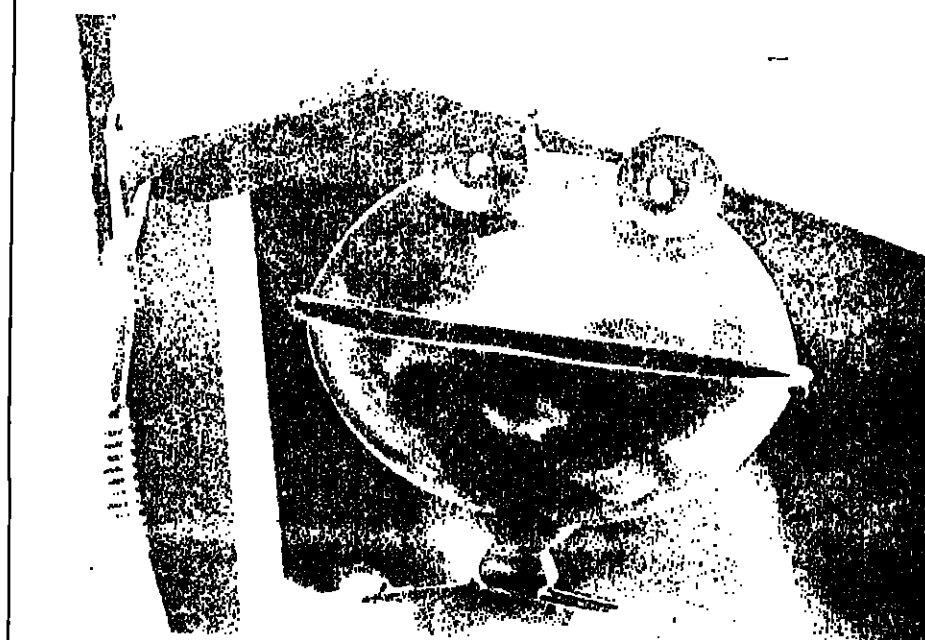
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Up to £4,760 + Car

An old-established finance company, based in Ashford-Lynne currently with 20 branches in the North and with considerable plans for expansion, requires a commercially minded Accountant, not necessarily qualified, to head up a new Management Services Department. Only men or women with practical experience of computer based systems need apply. The company currently operates an ICL 2903 mainframe computer which is shortly to be replaced by a Univac UTS 400 multi-light terminal configuration incorporating VDU's, floppy disc storage and the printer, linked to a Univac. The primary task will be to consolidate the systems development undertaken during the last three years and to enhance the management information systems to provide the financial control which will be required to support the company's development drive. Budgetary control is already in operation and a basic financial modelling system has been introduced.

The appointment offers good career prospects in a stimulating environment. A contributory pension scheme is in operation. Written applications giving brief personal and career details to the Financial Director, H. I. Greenwood Limited, 3/5 Stamford Arcade, Ashford-Lynne OLE 82Z.



WE'RE BRINGING OUR LEADER TO YOU!

Informal interviews 3 p.m. - 8 p.m. (no appointment necessary)

Manchester Monday, 15th May. Grand Hotel, Aytoun Street.
Liverpool Wednesday, 17th May. St. Georges Hotel, Lime Street.
Leeds Monday, 22nd May. Dragonara Hotel, Neville Street.

A close encounter with Cadbury Schweppes could be just what your career needs right now. Our sensors have detected they have one of the most advanced (by earth standards) in-house computer facilities in what you earth people call the U.K.

Hardware includes 2-IBM 370/158's + advanced TP equipment and many more quaint antiquities.

The centre is located at Bourneville a pleasant suburb of Birmingham.

The inhabitants are reported to be very friendly. Cultural, recreational and social activities registered high readings on our enjoyment recorders. Housing units are reasonable in cost too, and our surveys show much green countryside in close proximity.

They need experienced SYSTEMS ANALYSTS (2 years + 1 year) PROGRAMMERS (1 year + IBM knowhow) to work on on-line and batch systems. SALARIES ARE UP TO £6,825 PER ANNUM PLUS PROFIT LINKED BONUS. Where you start depends on experience and qualifications. At least 24 days holiday + public holidays. Sports and social facilities. Staff discounts.



Niall McCormack and his colleagues will be standing by to welcome you on the dates shown or ring them on 021-442 2000 at 9.30 for more information.

ata Computer Recruitment

A division of ATA Selection and Management Services, recruitment consultants to industry and Commerce since 1962

CRISIS IN COMPUTER INDUSTRY

An acute shortage of qualified Analysts and Programmers throughout England and Scotland is causing great concern amongst Computer Managers.

As a result of investigation this concern seems justified. We have discovered that very high salaries, excellent career prospects and interesting project developments seem insufficient to arouse interest on the employment market.

Action decided on by ATA Computer Recruitment is for Analysts and Programmers to ring us and tell us what else they need to work for leading computer installations and manufacturers.

We have over 200 computer positions in Scotland, North-West, North-East, Midlands, South and South-West, and we need your help to fulfil this demand. Any indication of salaries at this stage is meaningless as our clients will quite simply pay what you are worth.

WANTED 200 COMPUTER PEOPLE THROUGHOUT U.K.

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and Control

Babcock & Wilcox (Operations) Ltd. require Engineers and Mathematicians to work on engineering problems associated with boiler dynamics and control.

Using mathematical modelling techniques and hybrid and digital computers, the successful applicants will be responsible for the development of simulations for the prediction of plant performance and the subsequent transient analysis of the systems.

A degree or equivalent qualifications and experience in one of the following areas is required: Mathematics, Modelling, Analogue/Hybrid Computer Programming; Digital Computer Programming using a Simulation language, Mechanical/Control Engineering. The salary is negotiable.

Please apply giving full details of experience to: Mr. D. M. McLaren, Babcock & Wilcox (Operations) Ltd., 185, Great Dover Street, London SE1 4VB.

Babcock
Babcock & Wilcox (Operations) Ltd.

COMPUTER STAFF

Salary range - £3,200-£4,900

Our Client is a major industrial organisation. Vacancies now exist at Computer Operator and Senior levels for shift operating teams at a computer bureau located in South Yorkshire.

The work offered is varied and challenging, involving the use of several mainframes of differing manufacture. Considerable use is made of modern telecommunications network facilities.

Successful applicants will have experience of ICL 1900 using GEORGE 3 and/or IBM 370 VSI. For appointment at Senior level, experience of both is required, although alternative additional experience (e.g. of large scale bureau or telecommunications operations) may be acceptable.

Salaries, including shift allowances, range from £3,200 to £4,900; starting level will depend on experience and appointment.

Enquiries and applications should be sent to the address below. (Reference 780 must be quoted on your envelope. Enclose separately a note of any companies to which your application should not be sent.)

Ronald Fairbairn, Everetts Recruitment,
10 Greycoat Place, London SW1P 1SE

EVERETTS recruitment

MYRIAD APPOINTMENTS LIMITED

Computer Personnel Consultants

SENIOR PROGRAMMER

for
Problem Solving and Systems Design

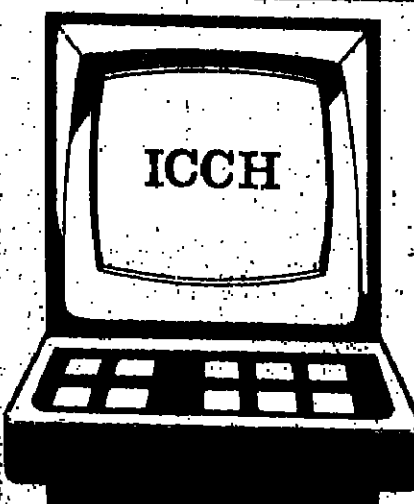
CITY

c £6,000

A fast growing technical support team is seeking a potential team leader capable of translating user requirements into a working system. Following extensive training the successful applicant will support the preparation and implementation of proposals using the company's financial application packages. Operating from their City offices he/she will be responsible for junior staff, capable of giving on-job training and supervision.

Ideally you will have at least three years' programming experience in a commercial environment. Machine and language are not as important as the ability to assimilate a problem and design and test a solution using on-line terminals.

The Company, a major U.S. Bureau, has been active in the U.K. for nearly six years and has recently commenced a planned expansion of their marketing operation. Internal reorganisation has created this new support function and the person appointed will be the potential deputy manager of this growing department.



AMBITIOUS OPERATORS

c. £3800

ICCH, International Commodities Clearing House, provides a clearing and guaranteeing service to commodity markets in the U.K. and Overseas. They have a substantial investment in data processing, which currently consists of an IBM 370/138 and an IBM 370/148 utilising DOS/VS and supporting an extensive CICS teleprocessing network. Because of business expansion and internal promotions, they are seeking to recruit additional personnel for their current 3-shift system.

It is envisaged that the successful applicants will have at least 1 year's operating experience on an IBM mainframe, preferably in a DOS/VS environment. Knowledge of GRASP/POWER and CICS would be an added advantage. In-house and external training facilities are used extensively and career prospects are excellent.

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Kent House, 87 Regent Street, London W1R 7HF
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OUTSTANDING OPPORTUNITY FOR IBM TRAINED SYSTEMS CONSULTANTS TO DEVELOP INTERNATIONAL CAREER & REPUTATION

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To IBM-trained personnel currently engaged in program support, SE or systems programming functions, a senior appointment is available. BASED IN LONDON with responsibility for establishing pre- and post-sales support in the Middle East.

This position offers the suitable candidate the opportunity to develop his experience and reputation in the international market. A VERY ATTRACTIVE SALARY FOR THE RIGHT MAN, who should be interested in varied travel up to 80% of his time.

We require candidates with the following:

- * Experience in MVS, VM/370, VSI, OS and/or DOS/VS on large mainframes
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This is a rare opportunity for the right man and we will be short-listing at an early date.

Send confidential C.V. to the address below or Reverse charge telephone call to us (24 Hour answering service), quoting reference GWM-ME.

DPSC Group Limited, International Management and Personnel Consultants, Crown House, Morden, Surrey SM4 6EU, England. Telephone 01-840 4311.



Computing in Education Administration

Middlesex Polytechnic is currently establishing a new team to develop aspects of a Polytechnic-wide computer-based management information system and corporate model. The initial emphasis is on resource management, covering students, staff, buildings and finance.

The Polytechnic has a DEC system 10 computer and all applications will be developed and operated on-line. Ultimately a central database will be created with which all the applications will interface.

Two vacancies exist at senior level for

Senior Analyst/Programmers
S01/2; £5044 - £5797 p.a. inc.

Graduate status will normally be essential, together with substantial experience at a senior level in either computerised data processing or business systems analysis. Please write for full details and application form, quoting first name. Applications to: Mr. M. J. P. Middlesex Polytechnic, School of Management, London W11 3AQ. Closing date: 22nd May.

Middlesex Polytechnic

24-hour answering service

Please telephone for a confidential discussion or write to:
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01-353 0981

Operations Consultant

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 **Infotech Operations Ltd**

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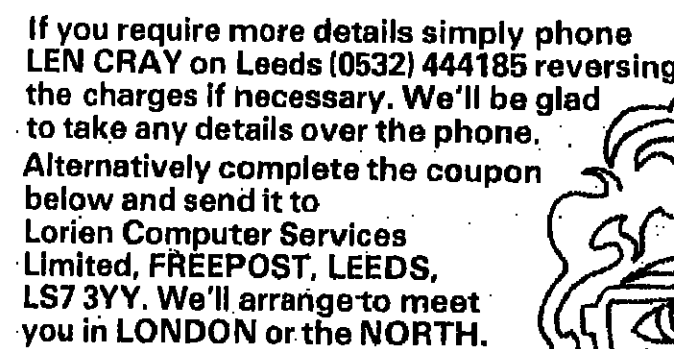
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REALISE YOUR POTENTIAL AND DEVELOP YOUR CAREER IN THE NORTH-WEST

Our clients are a group of companies manufacturing a diverse range of products with an annual turnover in excess of £24 million. They require additional personnel to make a substantial contribution to the on-line development programme.

These positions, based on the edge of the Yorkshire Dales National Park, Forest of Bowland and within easy reach of the coast and Lake District, offer job security and satisfaction, promotion by merit and the opportunity to join a department at the beginning of their teleprocessing development plan.

SENIOR SYSTEMS ANALYST/PROGRAMMER c£5,750 + expenses

The Senior Systems Analyst/Programmer will have Project Leader responsibilities and will have developed and implemented at least one on-line system preferably utilizing 2903/4 hardware. A strong COBOL programming background is essential and some experience of Team Leadership and user liaison would be beneficial.

For further details telephone Ian Baker on 061-832 5856 or alternatively write enclosing C.V. to ATA Computer Recruitment, Anglia House, 86 Cross Street, Manchester M2 4LA.

ANALYST/PROGRAMMER

c£4,500

The main duties of the Analyst/Programmer will be to assist the Senior Systems Analyst/Programmer in the design of the on-line systems and the subsequent coding in COBOL to comply with the proposed schedules and standards.

CHIEF OPERATOR

to £4,500

The prime responsibility of the Chief Operator will be to organise and schedule the work load in order to optimise machine loading and lay down the standards for the Operations Section. Whilst 2903/4 experience is extremely desirable, applications from experienced 1900 series staff are invited.

The company provides an excellent relocation package which is made up of all legal fees including Estate Agents' fees, survey costs, full removal expenses, interim subsistence payments and disturbance allowance of 10% of annual salary.

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B24HQ

BRISTOL (0272) 211035
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36/38 Baldwin St. BS1 1NR

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EH2 2JR

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COMMUNICATIONS EXPERIENCE IS VITAL TO YOUR FUTURE IN COMPUTING

SOUTH EASTERN COMPUTER SERVICES is already established as one of Europe's leading firms of on-line communications consultants. We are currently seeking potential consultants for major on-line projects throughout the UNITED KINGDOM.

We don't mind whether you are freelance or an employee; if you can match our needs now, you could become involved in some of the most exciting projects available anywhere, AND YOU CAN EXPECT TO BE PAID HIGH RATES AND/OR SALARIES ACCORDINGLY.

ANALYST/PROGRAMMERS

Minimum 4 years' commercial experience. Knowledge of CICS DL/1 or IMS would be an advantage, but not essential as training will be given.

ANALYST PROGRAMMERS

Minimum 4 years' experience IBM 360/370 mainframe. Recent experience of the 3780 series an advantage.

SENIOR PROGRAMMERS

Minimum 4 years' commercial experience. Knowledge of DOS/OS COBOL under MVS or VS1/VS2 an advantage.

ANALYST/PROGRAMMERS

Minimum 6 years' experience of finance applications. COBOL essential DOS and/or OS.

SENIOR PROGRAMMERS

Minimum 2 years' DEC experience. Knowledge of RSX11M operating system essential.

FOR FURTHER INFORMATION ABOUT THE COMPANY, RATES, SALARIES AND THE PROJECTS, CONTACT:

SOUTH EASTERN COMPUTER SERVICES
SOUTH EASTERN HOUSE, 3/5 OLD BRIDGE STREET
HAMPTON WICK, KINGSTON UPON THAMES, KT1 4DB

TELEPHONE: 01-977 5321 (10 lines) TELEX: 8814910
A Consultant will be available until 7.30 p.m. weekdays;
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Reverse charges from outside London Area

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MINI experience = MAXIMUM rewards

ANY mini hardware
High or low-level languages
Technical or commercial systems
Real Time applications

Our client is a well-respected and highly professional consultancy organisation with a continuous and impressive growth record over a number of years. Their activities extend across the full range of the computer industry with clients throughout the UK and overseas. Demand for their services is higher than ever, particularly in the area of mini computer applications and they therefore require a number of programmers to supplement their existing expertise in this field. Applications now being developed include air freight, computer typesetting, process control and telecommunications as well as various more commercially oriented systems.

Ideally we are looking for candidates with a minimum of 2 years' programming experience on Real Time Mini Computer applications, although we are also happy to consider candidates with less experience in this area. Due to the variety of hardware and applications currently under development, any mini hardware and language experience will be considered whether high or low level, commercial or technical.

The majority of vacancies exist at offices based in Hampshire and London although some candidates, specifically in the area of process control, may be based in the North-West. It must be appreciated, however, that due to the nature of the consultancy business, mobility is required from all employees and although every effort is made to assign employees to projects within daily travelling distance, there may be occasions when this cannot be done; all expenses are, of course fully reimbursed.

Salaries to **£6,500**
Variety of work
Excellent career prospects
Stable company environment

The Group recognises the need for job satisfaction and motivation and this is demonstrated by their exceedingly low staff turnover. Reviews are carried out every 6 months and a progressive career development policy is geared to reward the individual's own ability.

The company offers an excellent remuneration package which includes attractive salary, free BUPA and life assurance, contributory pension scheme, permanent sickness benefit and relocation assistance if appropriate. In addition, the Group offers excellent opportunities for transfer to overseas subsidiaries.

If you are interested in these positions, or wish to find out more about the opportunities, please call Sharon Matthews on 01-242 9356 (day) or Billericay (02774) 22351 (evenings) or complete and return the coupon. Ref: 452/CW/SM.

I am interested in the Mini Programmer positions

Name

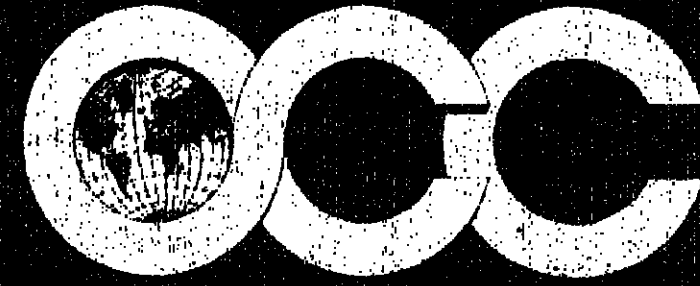
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ANALYST

PROGRAMMER HOLLAND
Our client, an international engineering company retaining IBM 370 hardware seeks an analyst programmer with a minimum 3 years' COBOL experience. CICS VS would be an advantage. The company is situated in a historical University town close to the Dutch/German border. Co. offers:
★ Relocation expenses
★ Working in a new modern complex
★ Excellent career prospects
★ Salary around 40,000 guilders + BONUS
Ref. 1473

IBM ANALYST

PROGRAMMERS SURREY
Opportunities in a local area rapidly expanding company seeks COBOL analyst programmers. This large concern with large IBM equipment in a commercial and financial environment co. can offer:
★ EXCELLENT promotional prospects
★ Variety of new development work
★ FREE BUPA and FLEXITIME
★ Salary to £6,000
Ref. 1382

SALESMEN/

WOMEN HOLLAND
World-wide manufacturing company based in Amsterdam seeks salesmen/women to be involved in marketing their hardware, software and ancillary equipment. Co. offers:
★ Tremendous career opportunities
★ World-wide first-class travelling
★ Relocation expenses for married and single persons
★ Salary 42,000 guilders (£10,000) + commission + expenses
Ref. 1339

SYSTEMS

ANALYST LONDON
World-wide company which provides services to oil and construction industry has an immediate vacancy for systems analyst. Candidates should have at least 2 years in the design and implementation of large commercial systems. IBM programming background would be an advantage. World-wide user contact. Co. offers:
★ Excellent career prospects
★ Generous fringe benefits including L.V.'s
★ Pension scheme/S.T.L.S.
★ Salary to £7,000
Ref. 1480

PROGRAMMERS MIDDX

One of the most significant forces in the computer services industry in the U.K., our client provides a comprehensive range of services to clients world-wide. Retaining IBM 370 158 under OS, co. seeks programmers with min. 18 months' COBOL and/or PL/I. They offer:
★ Move within programming, into systems analysis or sales support or join one of their specialist groups
★ Chance to move onto MINIS
★ Excellent promotion prospects
★ Salary £5,500
Ref. 1481

JUNIOR PROGS

CITY/SE
A challenging career awaits you if you have 12 months' experience on any IBM high level language to join highly successful team within leading national organisation with IBM 370 hardware. Co. offer:
★ New project commencing May/June
★ Room for career growth
★ Training in PL/I
★ Learn Database and Teleprocessing
★ Salary £4,500
Ref. 1150

ICL PROGS

CITY
Our client is a city-based financial institution retaining ICL 1800 hardware with a 2880 planned for 1979. They require persons with min. 12 months' ICL COBOL exp. and can offer:
★ Exciting and interesting on-going and future development work
★ Excellent training/promotion prospects
★ 3% house-purchase scheme
★ Non-contrib. pension/free life insurance
★ Salary £5,000 neg.
Ref. 1477

PL/I PROG

LONDON
Well-established D.P. division of major international trading co. is rapidly expanding and consequently seek Senior PL/I programmer (knowledge ASSEMBLER an asset) with significant years of experience. They offer:
★ Variety of well-planned projects
★ Promotion prospects with a company who know where they're going!
★ Training in CICS
★ Staff restaurant
★ Salary to £7,000 p.a.
Ref. 1479

ANALYST/PROG EAST END

Electronics manufacturing co. working on a global scale seeks clear, logical thinking analyst programmer for their ICL 1900/2900 series equipment.
★ Control of small development or support projects
★ Supervisory exp.
★ Full scale of projects ranging from purchasing to financial modelling
★ Subsidised restaurant/drinking club
★ Salary £5,500.
Ref. 1153

PROGRAMMER BELGIUM

Our client is a major organisation, providing comprehensive marine engineering and construction services to companies engaged in hydrocarbon development. Retaining IBM 370 under DOS/VS they seek person with 4 years' COBOL exp. with PL/I, RPG or ASSEMBLER an asset. Co. offer:
★ Variety of projects pertaining to administration within a rapidly expanding co.
★ Centrally based—BRUSSELS
★ English-speaking environment
★ Settling-in allowance for married or single persons
★ Salary approx. £18,000 p.a. — total package
Ref. 1474

MINI PROGS

CITY
Prestige company based in America, Europe and U.K. are recruiting persons at varying levels (from programmers to systems specialists) for their new City offices. Having large DEC PDP equipment, they seek people with exp. on any MINI but using ASSEMBLER. They offer:
★ Extensive training in up-to-date technology
★ Excellent career opportunities
★ Training in RSK, RTII and RSTS
★ Chance to travel abroad
★ Salary £6,000-£10,000 p.a.
Ref. 1478

JUNIOR PROG HOLLAND

Very rare opportunity for ambitious person wanting to work overseas. If you have initiative, good education and approx. 8 months' COBOL, PL/I or experience of other languages then ring NOW!
Co. offers:
★ Excellent training within world-wide organisation using modern technology
★ Responsibility for maintenance but will be more into development areas
★ Centrally based—AMSTERDAM
★ English-speaking country
★ Salary 36,000 guilders (£8,750 p.a.)
Ref. 1449

IBM PROGS LONDON

Multi-national company with IBM 370 equipment requires persons with minimum 18 months' ASSI MIN 114 experience to join highly professional team currently developing a major sophisticated on-line systems. Co. offers:
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★ Continued development with a well-planned schedule
★ Good promotional prospects
★ Excellent benefits include cheap travel
★ Salary to £6,000
Ref. 1290

SYSTEMS ANALYST HAMPSHIRE

Beautiful countryside surrounds this well-established NCR installation based near to the NEW FOREST and South Coast. Min 2 yrs' exp. in commercial or industrial systems pref. with NCR Century and Neat 3.
★ Currently setting-up strong team to develop existing on-line systems
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★ Discount on co. goods
★ Subsidised lunch, sports/social club, pension scheme
★ Salary £5,250 + Xmas bonus
Ref. 1472

PROJECT LEADER LONDON

Computer dept. of international concern has recently produced a five-year plan containing proposals for major development across a very wide area. Retaining IBM 370 145 using COBOL + ASSEMBLER. Co. can offer:
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★ Development of real-time systems
★ Job security with prestige concern
★ Excellent career prospects
★ Subsidised restaurant/sports/social club
★ Salary £7,500
Ref. 1428

PL/I PROG HOLLAND

Our client, a major and successful concern, wishes to strengthen its European programming team. Retaining IBM 370 hardware under DOS/VS, the co. seeks ambitious person with PL/I, CICS, or COBOL having an asset. Co. offers:
★ Involvement in development of new and exciting projects
★ Opportunity to work with an expanding organisation operating world-wide
★ Centrally based - Amsterdam
★ Salary 40,000 guilders (£10,000) + cost of living allowance and relocation expenses
Ref. 1428

PERKIN-ELMER DATA SYSTEMS DIVISION APPLICATIONS SOFTWARE SPECIALISTS SALARY TO £7,000

The INTERDATA DIVISION of PERKIN-ELMER DATA SYSTEMS has located a significant part of its software development at its International Headquarters, based in Slough.

At present, the department is 40-strong, and combines a friendly and informal working environment with high professional standards. Our current requirement is for suitably qualified professionals who can demonstrate significant achievement in the commercial software field. The successful candidates will form part of a new group, working in the area of development support, which covers such services as:

- ★ Validation of individual software products.
- ★ Integration of these products into complete systems.
- ★ Maximisation of system performance.
- ★ Documentation of the overall system
- ★ Continuation software engineering

THE QUALITIES WE SEEK INCLUDE:

- ★ A minimum of three years' relevant experience in a commercial software product environment, either in a development situation or as a user.
- ★ Practical experience in COBOL and/or RPGII with some knowledge of Assembler.
- ★ Good communication skills.
- ★ A knowledge of database and transaction processing techniques would be an asset.

WE OFFER:

- ★ Salaries up to £7,000 p.a. for the right applicant.
- ★ Relocation expenses where appropriate.
- ★ The usual large company benefits, including pension and health insurance.

If you are interested and would like more information call Bernard Evans, or write to him at the address below, giving your career details.

PERKIN-ELMER DATA SYSTEMS, 227 BATH ROAD, SLOUGH, BERKS, SL1 4AX. TEL. SLOUGH 34511.

MYRIAD APPOINTMENTS LIMITED

Computer Personnel Consultants

JUNIOR SYSTEMS CONSULTANT

CITY To £5000

We are seeking GRADUATES with at least a YEAR's commercial experience to join this expanding Bureau as Junior Systems Consultants. During your initial eighteen months you will undergo extensive training internally and externally in both business analysis and the company's financial products.

The Company, a major U.S. Bureau, market a range of financial packages, together with an advanced programming language. The products are supplemented by a communication network linking 80 mainframes in the States to both Europe and Japan.

The Company offers an excellent starting salary together with extensive training and the opportunity to move into business consultancy.

2-4 years' COBOL

Near CROYDON Programmer/Analysts £4500-£6000

These positions present an ideal opportunity for Programmers keen to accelerate their careers into analysis on a wide range of new development applications using database and on-line techniques.

Successful candidates will join a project oriented environment and can progress rapidly to hold responsibility for the development of systems from inception to implementation.

Applicants should have a minimum of two years' COBOL programming experience gained on any machine. Keen to progress to analysis they should have a flexible approach to d.p. and be capable of managing small to medium size projects involving close user contact.

In addition to excellent commencing salaries these positions offer an attractive large company benefits.

(COMPUTER ENGINEERING)

SALARY c £6,000 P.A.

A leading Computer Manufacturer based in Hertfordshire is wishing to appoint the above position in order to cater for the training of engineering personnel under a Government scheme.

It is expected that suitable applicants should be:

- ★ versed in modern computer technology
- ★ able to demonstrate good communicative skills
- ★ prepared to become involved in the selection of suitable candidates.

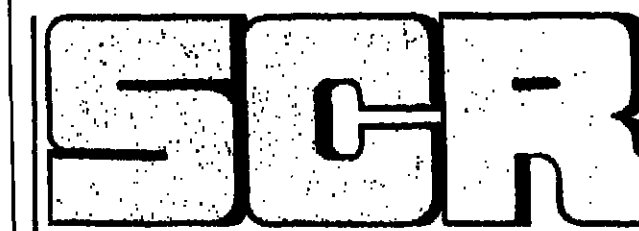
The position would be suitable for either a qualified Instructor or a competent Hardware Engineer with the desire and ability to progress in this direction.

Candidates should in the first instance contact:

ANDY CARTER (in strict confidence) ON: 021-236 3781
EVENINGS & WEEKENDS ON: Lapworth 3272

REF. NO. CW/8/2

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OFFICES: AMSTERDAM, PARIS, MANCHESTER



Consultants	to £9,000 (even more for exceptional candidates)
Designers/Technical Consultants	to £7,000
Senior Programmers	to £6,000
Programmers	to £5,000

Hoskyns Banking Division has operated successfully in the Banking Sector for many years. Our assignments range from strategic studies of computer requirements through to the production of programs and systems to meet particular requirements of individual banks. Our services include the provision of an International Banking package which has been supplied to many major banks. As part of our planned expansion we have vacancies for:

- * **Banking Specialists** at all levels with real experience of banking systems
- * **Minicomputer Specialists** to join a team working on the development of application and other software for an international distributed processing system based on PDP/11 computers. Knowledge of DEC computers, RTL/2 or similar high level languages will be an advantage.
- * **Programmers and Senior Programmers** with experience of RPG programming.

Contact David Menzies on 01-251 4581 or write to Banking Division
John Hoskyns & Company Limited
145/157 St. John's Street, London EC1V 4QJ

Hoskyns Turnkey Division specialises in the provision of a complete systems and hardware service. Due to continuing and rapid expansion of our work in this area we require additional staff. If you have practical experience of implementation of commercial systems on PDP/11, HP3000 or similar equipment we can offer you an outstanding career opportunity. Our immediate need is for:

- * **Consultants** to evaluate requirements and advise clients on computer strategy, to manage projects from inception to implementation, or to market our Application Systems.
- * **Technical Consultants** to work in project teams on design of advanced systems
- * **Senior Programmers** with at least one year's supervisory experience and an in-depth programming background
- * **Programmers** with at least one year's experience of BASIC, COBOL, DIBOL or MUMPS

Contact Andy Mansfield or Tony Winslade on 01-242 1951 or write to Turnkey Division
John Hoskyns & Company Limited
91/93 Farringdon Road, London EC1M 3LB

consultants

Bournemouth £6000-£7500

Hoskyns Education, a division of the Hoskyns Group, has doubled its revenue in the last two years. To support this growth we need more consultants at our Bournemouth based Education Centre.

On joining us you will be provided with training in our methodology and course management methods. After this you will be involved in running our standard courses. You will organise discussion groups, manage business games, lead project work and above all help people turn knowledge into practical skills. Within a year you could find yourself on brief assignments in Holland, Switzerland, Kuwait, Hong Kong and the USA... to name but five countries in which we have given courses recently.

In Bournemouth you will also take project responsibility for course development and client liaison and will have the opportunity of doing short consultancy assignments when not running courses.

The people we are looking for will have had around four years' experience in the analysis, design and implementation of commercial computer systems including one or two years of managing people.

Naturally we pay removal expenses and senior staff also receive company cars.

If you want to work in a growth orientated organisation which produces the best education courses available please send full career and salary details, including your telephone number to:

N. J. Blakeney-Edwards, Director - Education Division,
John Hoskyns & Company Limited,
91-93 Farringdon Road, London EC1M 3LB.
Telephone: 01-242 1951

hoskyns

A systems company with over 500 professional staff
13 computer centres and 14 years of continuous growth.

COMPUTER CAREER OPPORTUNITIES BATH

The Bath and Portland Group Ltd. provide a computing service to its subsidiary companies operating in the Building and Civil Engineering, Minerals, Engineering, and Agricultural Industries. Due to planned expansion we are seeking persons to complement the existing small team to assist with the design and implementation of both new work and the enhancement of existing systems. It is envisaged that companies will be linked to the ICL 19011 mainframe using 7602 terminal equipment in the near future leading to 2950 conversion later.

COBOL PROGRAMMERS

We have vacancies for persons with at least 12 months' COBOL programming experience, preferably with ICL background, those vacancies would be ideal for the younger programmer seeking an environment to expand his or her abilities.

For the more senior programmer we offer the possibility of ICL training in system design and eventually systems analysis.

Starting salaries will be paid according to age and experience.

COMPUTER-OPERATOR

An excellent opportunity exists for a person with ICL 1800 experience to join our operations team. It is anticipated that in the near future the present 1801T card and paper tape installation using EDS 80 and MT will be connected to RGE and on-line facilities with 7602 and 2950 later.

Two shift working is currently in force between 8.00 a.m. and 8.00 p.m. Monday to Friday.
Salary includes a shift allowance and is commensurate with age and experience.

Please write in strictest confidence enclosing brief career details and salary guide, to:

Computer Services Manager
The Bath & Portland Group Ltd.
20 Mansvers Street
BATH

Leeds Polytechnic School of Mathematics and Computing LECTURER II

Applications are invited for several posts at Lecturer II level. Applicants should be qualified, preferably with practical experience, in one or more of the following areas: Operational Research, Statistics, Computing and should be willing to contribute to the School's teaching research and consultancy.

Salary Scale (under review) £3744-£6985 — includes supplements.

Details from:
The Services Officer (C.24)
Leeds Polytechnic
Calverley Street
Leeds LS1 3HE
0532 462923

Please enclose a s.a.e.

Closing date 17 May 1978.

PROGRAMMERS

for your

CLOSE ENCOUNTER

of the ONLY kind Contact:

VIP

CONSULTANTS

INTERNATIONAL

01-491 3286/4930095/

499 2818

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Data Processing Recruitment Consultants

Database + Tele-Processing Paris

Salary: C.£16K Negotiable

One of the World's foremost Software and Hardware specialist groups with centres throughout Europe, North America and Asia has asked Logistix to identify top calibre Database & Tele-processing Programmers up to Team Leader level for both permanent and contract positions in France. Suitable applicants must have current hands-on applications or systems programming experience using COBOL, PL/I or BAL. It is anticipated that candidates will have worked with MIS applications for 2 years or longer, preferably with either IBM

or Honeywell compatible Database Systems. Applications cover on-line enquiry systems, sales ordering, stock/inventory control, budgeting and forecasting etc. The scope of projects and the prestige of working with this acclaimed Market Leader will be certain to appeal to the most demanding career minded individuals. Interviews will be held at our Client's London offices as soon as possible with a view to making offers of employment within 10 days of interview.

(Ref. 124)

Programmers-Analysts-Consultants Holland

Salary: £9.5 -- 15K + Exceptional Benefits

Our clients, pioneers in frontier communications developments have contributed significantly to the accelerated advancements in Mini Computer technology and are internationally recognised as market leaders in their field. In pursuit of maintaining their forefront leadership our clients seek to identify key personnel to join them in their next development phase. Real-time specialists with strong Mini Computer backgrounds will make a vital contribution to the attainment of these goals within an environment offering the highest standards of professionalism, job satisfaction and development potential. Successful candidates will ideally demonstrate concentrated expertise with a narrow band-width of specialisation rather than general experience across a broad spectrum. Furthermore they will either be graduates (Computer Science or related

discipline) or will offer exceptional relevant experience in lieu. Consultants, Team Leaders and Senior Analysts are likely to be currently engaged in Data Communications or Real-Time mini software development within either a systems and software group or end-user environment. Implementing sophisticated applications software. Analysts/Programmers and Programmers will certainly offer extensive Assembler expertise within these areas of specialisation. In addition to above-market salaries our clients will pay full removal expenses for you and your family and provide, where necessary, a resettlement advance. The costs associated with temporary accommodation will be met by the company pending location of permanent housing. Numerous other exceptional benefits are offered providing a total package of considerable attraction.

(Ref. 125)

Scientific Fortran Programmers Germany

Salary: £18K + Package

THE CLIENT: A multi-national European Research & Development Agency is further expanding its team strength in the area of Scientific project implementation and require several Permanent Fortran Programmers with either Mini or Main-frame hands-on experience (not ivory tower). THE APPLICATIONS: A wide variety of projects are currently being developed and planned requiring specialist skills in one or more of the following areas: Numerical Analysis, Image Processing, Operational Research, Mathematic Modelling etc.

The scope and involvement of these applications are likely to be both challenging and interesting and are certain to push the horizon of technical sophistication to the limit. THE PACKAGE: In addition to a very realistic salary the Company also provides generous re-location expenses, medical insurance and pension schemes as well as initial paid accommodation expenses for you and your family. Interviews will be held in London during May and offers will be made within days.

(Ref. 126)

RPG II Programmers Thames Valley + C. London

Salary: £7K + O'Seas Travel

An International and highly reputed Database/Tele-processing Systems Group has a number of new openings at three convenient locations in the South-East for RPGII programmers with three years or more experience of Commercial or Business System applications. Ideally candidates will have gained their programming experience on IBM System 3 or 32 and will have some basic software knowledge. Applications

include development of T.P. and Database packages compatible with IBM Mini hardware. This is certainly a state-of-the-art opportunity and will appeal to challenge seekers with career development ambition. The high salary reflects the importance which our clients place on the acquisition of these personnel whose future are assured in this excellent professional environment.

(Ref. 127)

New Range Database+T.P. Scandinavia or London

Salary: c.£16K (Scandinavia) c.£8K (UK)

An important client of international repute with offices in the Thames Valley, Central London and Scandinavia urgently require the following permanent or long contract personnel: Consultants, Analysts, Programmers, and Programmers to work on a wide and interesting variety of commercial projects involving Database and Tele-processing expertise. Successful candidates will have current exposure to large CL New Range hardware and will be able to demonstrate expertise in one or more of the following areas:

A minimum of 18 months solid New-Range experience is a prerequisite. The Scandinavian based positions are for 1 year (renewable). In addition to extremely competitive salaries full re-location expenses for candidates and their families are provided as is a resettlement allowance. European positions attract 12 months salary per annum and a minimum of 4 weeks leave with paid return-fares to the UK. This New-Range installation is the first to be installed in Scandinavia and carries significant prestige. Interviews will be held in London as soon as applications are received.

(Ref. 128)

Logistix, Freepost 32, London W1E 3YZ
01 491 4636 Telex 28800

(Reverse charges)



Avon House, 366 Oxford Street, London W1M 9HA

Senior Production Controller

Croydon

To £5,000

New position — New hardware —
Expanding environment

This new position has been created as part of a major expansion plan by our client's DP department. Already a major user of DP they are committed to further significant investment. As a first stage a Data 100 terminal is being installed as a front end processor to a 370/158.

The successful applicant will run a small team — initially consisting of a production controller and terminal operator. It will be necessary to liaise with user management and staff as well as the systems and programming groups.

Candidates should have outstanding OS JCL knowledge and a business appreciation. They should have a mature and responsible attitude as this is a critical position within DP.

This is an opportunity for someone to develop with the department's expansion and build a significant career. Our client is part of a major financial group and so as well as a competitive salary, major company benefits apply.

This is an urgent requirement so telephone our CROYDON office NOW or write quoting ref: CW16-BH.

01-686 9683 (34 HOUR ANSWERPHONE) 061 236 2419 (AFTERNOON)
19 PARK STREET, CROYDON, CRO11 1TA (KINGSTON ROAD, CROYDON, SURREY)

COMPUTER AND PERSONNEL CONSULTANTS **CAPP ASSOCIATES** LONDON AND MANCHESTER

Production Controller Computing Branch

LONDON SE1

The Production Section of the Computing Branch operates a PDP-11 computer with EDS 60's and magnetic tapes, using GEORGE 3, to provide a general purpose computing service. Batch processing includes accounting work, analysis of engineering data and critical path planning. An on-line service is provided for data updating and program development. A 7905 communications processor is used for support to the VMEs and the 1903T to an IBM computer on another site. Data preparation is on a key reader system.

The Production Controller will have responsibility for the efficient running of this Section, including planning for, and the installation of new equipment, maintenance of system software, the data communications network and software and the implementation of new systems in co-operation with the Development Controller. Several years experience in the field of computing is required with the ability to manage staff and promote good labour relations.

Salary within a scale rising from £7606 to £9771 per annum.

Applications quoting Vacancy Number 1196/78/CW giving full details should be forwarded to the Personnel Officer (Recruitment), to arrive by 1 June 1978.



Central Electricity Generating Board
South Eastern Region
Bankside House, Sumner Street,
London SE1.

UNIVERSITY OF
SOUTHAMPTON
Faculty of
Mathematical Studies
Computer Studies
Group

Senior Experimental Officer

Applications are invited for this post in the Computer Studies Group, to be responsible for the running of the Computer Studies Teaching Laboratory. The successful candidate will be responsible for the day-to-day activities of the Laboratory, the person appointed will be responsible for the maintenance and documentation of the system software, and will take a large part in the development of new software. Experience of microcomputers and their software is essential, and a degree in Computer Science or equivalent professional experience is desirable. Candidates with PhD or higher degree and a minimum of 3 years' experience in the above field will be given an additional advantage. Salary within range £3880-£4178, with a minimum of 4 weeks leave with paid return-fares to the UK. Interviews will be held in London as soon as applications are received.

Applications to: E. C. P. Roberts,
100 University, Southampton SO9 4NA.

UNIVERSITY OF LEICESTER

COMPUTER LABORATORY SYSTEMS PROGRAMMER

Applications are invited for the post of Systems Programmer within the Computer Laboratory. The work will include:

Implementation of the Midlands Universities Network (MUN) (Development of on-line, real-time computer links)
Development of system software on the PDP-11/34
The Laboratory has a CDC Cyber 72 operating under NOS and PDP-11 microcomputers providing front-end and network facilities. Applicants should possess a good grasp of systems knowledge of data communications or peripheral interfacing would be an advantage. Salary will be within the range £3188-£5282 p.a. on the Computer Office Scale, according to qualifications and experience. Further particulars and forms of application may be obtained from the Director, Computer Laboratory, The University, Leicester LE1 7RH.

CONTRACT
PROGRAMMER
COBOL/DOE/PL1
SOUTH ENGLAND
TOP RATES

X-Cell Computer Services
47 Essex Street, WC2
01-383 8261

CONTRACT
PROGRAMMER
RPG-II, N. LONDON
TOP RATES

X-Cell Computer Services
47 Essex Street, WC2
01-383 8261

ata Computer Recruitment

A Division of ATA Technical and Management Services, a Division of ATA Technical and Management Services, a Division of ATA Technical and Management Services.

COMPUTER SALES! SYSTEMS SUPPORT! ANALYSTS!

c £14,000 + company car

Our clients, one of the fastest growing computer companies operating in this country, are keen to recruit sales executives for the MIDLANDS, SOUTH WALES and EAST ANGLIAN areas. Vacancies are also available in the SOUTH. Having been in this country for thirteen years, they are still achieving growth at the rate of 30% per annum in conjunction with the other divisions of the company who also operate in high technology fields. Applications for these posts are invited from:

- Experienced mini-computer or bureau sales executives aged 24/40.
- Experienced computer personnel with analysis, systems support, projects or similar background, who wish to enter the sales world. Aged 24/32.
- Experienced sales people from a different sales environment who wish to enter the computer sales world at trainee level.

Remuneration will be an excellent basic salary + negotiable guarantee + commission = £13,000 on target income. Fringe benefits include a Cavalier GL car + all expenses + an excellent pension scheme + 1st class sales incentives. For full details and immediate confidential interview telephone your nearest ATA office or write enclosing a curriculum vitae to:

ATA COMPUTER RECRUITMENT
8th Floor, Woolworth Building
102 New Street, Birmingham
Southampton office now operational at 23 Cumberland Place,
Southampton, SO1 2BB. Telephone: 0703 37555.

LONDON (01) 637 0781 MANCHESTER (061) 832 5856
BIRMINGHAM (021) 643 1994 BRISTOL (0272) 211035
EDINBURGH (031) 226 5381 CRAWLEY (0293) 514071



Take the E.D.P. lead in Australia

The Commercial Bank of Australia Ltd offers career opportunities to top computer personnel who seek better financial and career opportunities abroad.

A totally new system is being developed at CBA Headquarters in Melbourne incorporating on-line services with distributed processing and decentralised data bases. The new system will use structured design techniques to produce integrated modular accounting, financial and management information systems.

The CBA is a major Australian bank with over 900 offices in Australia, New Zealand and overseas.

Attractive salaries are offered and fringe benefits include home purchase assistance, relocation costs and subsidised pension and medical scheme.

Initial interviews will be held in London during the week of 15th May, with final interviews conducted by senior Australian consultants, also in London, in the same week.

Quality Assurance Specialist up to A\$22,000

Functions cover the attainment of approved standards in systems development and computer operations, with the provision of the highest standards of integrity and security of computerised activities. Applicants should have 3 years experience of communications hardware and software, and a good technical ability and knowledge in systems analysis, programming, operations, data base management, information security, accounting/auditing. Further, a sound capability in quality assurance and an awareness of the potential demands on the system from a developing user is required. A degree or equivalent is preferable.

DBMS Manager up to A\$24,500

Responsibilities are for the design, implementation and maintenance of the on-line data bases, access techniques and the initial physical structure of the data

base. We require at least 10 years EDP experience including large data base design and management, with DBMS software and architecture, data dictionary/directory and systems performance measurement involvement. Thorough knowledge of available software and on-line processing systems and developments is expected.

Data Administration Manager up to A\$22,000

Specific duties will include defining the content and logical structure of the data base and as a consequence, establish the data dictionary, define entry standards, data protection and facilitate systems integration. Background must include business analysis, systems design and programming, with dictionary assembly and data structure design. This experience should also include one major management information system. A degree in Economics, Mathematics, a technical or computer science is preferred.

Please apply as soon as possible enclosing full career and personal details and salary history to Mr. A. G. Boyd,
c/o The Chief, London Manager, The Commercial Bank of Australia Ltd., 12 Old Jewry, London EC3.
All applications will be treated in the strictest confidence.

UNIVERSITY OF ASTON IN BIRMINGHAM Department of Applied Psychology — Neuropsychology BIOMEDICAL ENGINEER

The Neuropsychology unit requires an engineer with good knowledge of computing electronics to operate their PDP-8E computer system. Candidates should have experience of microcomputers and in problem solving although an appropriately qualified graduate will be considered. The successful candidate will join a team working in Electroencephalography and evoked responses, in clinical diagnostic work as well as in fundamental research. Opportunities for gaining a knowledge of neuropsychology and working for a higher degree facilities available on a PDP-15 and the University ICL 1905.

Salary within the Other Related 18 Scale — £3188-£5282 p.a. Informal enquiries to Dr. G. F. A. Harding, Head of Unit (Tel. 021-359 3611 ext. 8255).

Further particulars and application forms may be obtained from the Staff Officer, University of Aston in Birmingham, Gosta Green, Birmingham B4 7ET.

The appointment will be for a temporary period of 12 months in the first instance, with a possibility of a further extension. Please quote reference number 0/010/CW.

THE UNIVERSITY OF LANCASTER RESEARCH ASSISTANT DEPARTMENT OF COMPUTER STUDIES

Applications are invited for the post of RESEARCH ASSISTANT in the Department of Computer Studies. Men should be able to assist in developing and documenting software for the Department's ICL 1905 and ICL 2900 minicomputers. Experience of an assembly language would be advantageous.

The appointment will be for a period of one year at the lower end of range 18 (£3188-£5282).

Further particulars may be obtained quoting reference 147/78 from the Staff Officer, University of Lancaster, Bailrigg, Lancaster LA1 4YW, to whom applications (6 copies) naming three referees should be sent not later than 5 June 1978.

SALES — JOB CHECKLIST

When considering a job change you must be satisfied by the answers to these questions.

- MUST I MOVE?** No, if you live in Southern England. Else company offers excellent relocation.
- GOOD COMPANY?** Yes, excellent. Large Computer manufacturer. Fast growth.
- HOW MUCH?** Excellent Base Salaries + guarantees. Realistic earnings to £15,000 or more.
- WHAT MARKET?** Selling into large own-user base. Hundreds of well qualified prospects and customers.
- SECURITY/CAREER?** Excellent long term future. Career Development Programme.
- PRODUCTS?** Distributed Processing (terminals, minis, comms, data-entry, small business systems etc.)
- BENEFITS?** MONEY, CAREER, PRODUCTS, SUPPORT, NICE PEOPLE, CUSTOMER BASE, EXCELLENT ENVIRONMENT, EXPENSES.
- INTERESTED?** Phone us to talk it through. Reference CW 182.

Chemical or Mechanical Engineers Senior

Marketing / Sales Positions £8,500 p.a. base salary

World leaders in Engineering Applications and Design Automation, using Computers. They need:

A Marketing Consultant to be responsible for The Mechanical Engineering Sector.

A Marketing Consultant to be responsible for the Chemical Engineering / Process Industry Sector.

These are EXCITING, CHALLENGING opportunities. Phone or write to arrange discussions REF CW 183.



Insight Marketing & Personnel
Consultants Limited,
72-76 Marylebone High Street,
London W1M 4AJ.
Telephone No. 486 5644

Announcing a comprehensive expansion programme right here

There are overwhelming reasons why you should get into this exciting computer unit, which has grown extensively - and will be expanding on an even greater scale from here on in...

1. Money

Salaries are at present under review to take effect from 1st July. And projected expansion could take you swiftly through the promotion stakes and salary scales. These are most certainly not dead men's shoes situations!

2. Experience

Familiarisation with our big Univac systems takes just a few days. Literally. So if your experience lies elsewhere you can increase your future potential by widening your knowledge here.

3. Potential

Right now, the latest UNIVAC equipment is employed - an 1100-11 (comparable to ICL 2970 or IBM 370/158) with 393K memory, fast-developing on-line facilities, and on-line programme development facilities. Plans are laid for a dual processor system in 1979 to be followed by a larger dual processor system in 1981. So getting in now means tremendous career potential as the rapid expansion occurs.

4. Job satisfaction

Few computer users have a comparable application range. You could be working on jobs involving social



workers one day, educationalists the next and the police the next. Applications now in the pipeline concern a traffic accidents analysis, personnel records, the supplies system and an on-line library system. So it's variety all the way!

5. Benefits

Removal expenses, disturbance and lodging allowances and assistance with housing are given

Act now - include appropriate background details and indicate which position interests you in your letter addressed to the Head of Computer Services, County Hall, Kingston-upon-Thames, KT1 2DN, or phone 01-546 1050 ext. 3479 for more information. Your application must be received by 28th May 1978.



where appropriate. There's also the advantage of flexible working. Membership of the staff club, automatic and free - here you'll enjoy a bar, and activities range from snooker, darts, squash, tennis and badminton to disco's and drama productions. There are also attractive restaurant facilities. Appointments immediately available are:

Software Specialist

- up to £6,382

Internal promotion is the reason for this job. It involves working with UNIVAC software such as EXEC8, CMS and TIP, plus advising the Development Group and Operations Support Group and developing in-house software. UNIVAC experience is not essential but you must have experience of any major manufacturers' operating systems and communications software.

Lead Programmers

- up to £5,350

You will assist Senior Programmers in design/specification of programmes and testing critical functions. 3 years' experience plus knowledge of COBOL is required.

Programmers

- up to £4,900

If you have at least 15 months' COBOL experience you'll start at a salary linked to your achievements so far - but the career scheme gives opportunity to move fast through the salary scales.

Kreativität und Kontaktfreudigkeit erwünscht

Wir bieten den kompletten Rechenzentrum-Service zentral in Frankfurt für alle europäischen Zweige einer weltweit aktiven Versicherungsgruppe. Da die Nachfrage nach unseren Dienstleistungen beständig wächst, haben wir unsere Hardware jetzt auf eine /370-138 mit 512 KB (unter DOS/VS Rel. 34) ausgebaut. Aufgrund unserer Expansion wird ein

Versicherungswirtschaft

ANALYST/ PROGRAMMIERER

- mit guten Englisch-Kenntnissen -

mit der Fähigkeit, Projekt-Letter zu werden, gesucht. Die Aufgabe besteht in Systemanalyse in allen Versicherungsbereichen für Neuorganisation, Änderung und Übernahme fertiger Abläufe für weitere Länder Europas, aber auch teilweise Programmierung (ANS/COBOL) dafür.

Sie haben sich schon einige Jahre in Systemanalyse und Programmierung im kommerziellen Bereich bewährt, sprechen gut Englisch und kennen sich vielleicht sogar schon etwas im Versicherungswesen aus. Sie erwarten gute Entwicklungsmöglichkeiten in einem kleinen Kreis junger und engagierter Kollegen, ein sicheres und ständig wachsendes Aufgabengebiet und selbstverständlich ein sehr gutes Gehalt.

Wenn Sie sich angesprochen fühlen, senden Sie bitte Ihre aussagefähigen Unterlagen an die COMPUTER SERVICES EUROPA GMBH, 21 Westendstrasse, 6000 Frankfurt/M, West-Germany. Tel.: 0611/74 04 04. Ihre Bewerbung wird von uns absolut vertraulich behandelt.

CANADA

Recent changes in the immigration laws in Canada will allow easier entry into the country for those people (male and female) whose job skills are in demand, and where a shortage exists within the Canadian labour force. Such is the case within many areas of the Data Processing job market where there is a strong demand in several areas of the country for the following specialised people.

PROGRAMMER/ ANALYSTS

£8,000 to £11,000

Experienced with medium to large-scale equipment, preferably IBM under OS/VS or MVS, COBOL, PL1 MARK IV languages, CICS, TSO, IMS or other DBMS exposure desirable. Positions available in a broad range of application areas and industries.

SENIOR ANALYST/ PROJECT LEADER

TO £13,000

Strong business background with several years' system design and project control experience. Good conceptual, communication and leadership skills essential. Career to date should reflect a proven track record of success in the implementation of large-scale systems. Positions exist in retailing, manufacturing, financial institutions and natural resource industries.

SOFTWARE SPECIALISTS

to £15,000

A strong demand exists for specialists skilled in the support of large-scale IBM installations. Your background should include solid experience with any of the OS/VS, MVS, CICS, TSO, IMS DB/DC, System 2000, ADABAS, 370 ASSEMBLER, SCP support, performance measurement and evaluation. Canadian business is placing an increasing emphasis on such leading edge areas as distributed processing, telecommunications and data base administration.

Our representative will be conducting preliminary interviews in London and should you feel interested in exploring the matter more fully, we invite you, in complete confidence to write or telephone, at which time you would be given more detailed information about Canada and its major cities, and how your particular skills fit within the prevailing job opportunities.

Jill Rowlands
34 Niton Road, Richmond, Surrey
01-878 5558 (after 6 p.m.)

Basingstoke & Deane Borough Council

Analyst / Programmer

SO.1

£4238-£4545 plus approximately £520

supplements per annum. The Council has decided to appoint a second-in-command in the Computer Section and would be pleased to hear from you if you have some (and particularly if you have all) of the following qualifications:-

3 years' experience in Cobol (including I.S. file handling)

Final II JCL/George I/George II

Good knowledge of ICL software and its capabilities

The new post is an important one in a small team operating on ICL 2804 with 2 EDS 80 and 4 mag. tape with DDC. Future applications will include non-financial routines and the person appointed will play a significant part in these developments.

Housing accommodation may well be available and assistance with removal costs will be given if required. There is an excellent staff canteen.

For an application form returnable by 26th May, 1978, please telephone Basingstoke 56222 ext. 207, or write to: The Personnel Manager, Basingstoke and Deane Borough Council, Civic Offices, London Road, Basingstoke, Hants RG21 2AJ.

The Institute of Oceanographic Sciences

has three vacancies in its

Marine Information and Advisory Service

MIAS is the national oceanographic data centre for the UK and has a responsibility to acquire information and high quality data and to make them rapidly available in the most useful format to industry, research workers and government departments. A computer based data bank has been established at the Bidston laboratory of IOS and the enquiry and information service is located at Wormley in Surrey.

An oceanographer is required to assist in the answering of enquiries, and in particular to handle requests requiring interrogation of the data bank via a computer terminal at Wormley. Applicants should have an interest in the handling of data by computers. (Ref. 78/009/593)

Two programmers are required at Bidston (Merseyside) to assist in the writing of software for the selection, processing and presentation of data and to maintain the MIAS software library and its associated documentation. (Ref. 78/201/6)

The appointments will be to the grade of Scientific Officer (SO) or Higher Scientific Officer (HSO) according to age, qualifications and experience. Minimum qualifications are an HNC or degree in an appropriate subject.

Salary will be
SO £2148-£3527 p.a.
HSO £3264-£4484 p.a.

plus supplements of £313.20 p.a. and 5% of total earnings (subject to a maximum of £208.80 p.a.) Starting salary may be above the minimum according to qualifications and experience.

Salaries are currently under review.

There is a non-contributory pension scheme.

The NERC is not a government department but conditions of service are similar to those of the Civil Service.

Application forms and further details from: The Secretary, Institute of Oceanographic Sciences, Brook Road, Wormley, Godalming, Surrey GU8 5UB. Tel. Wormley (042-878) 4141 ext. 272.

Closing date for applications: 31 May, 1978.

NATURAL ENVIRONMENT RESEARCH COUNCIL

Automation Engineer

Salary: £6204-£6615 inclusive

We have a vacancy for an Automation Engineer to assist with automation of a sewage treatment works at Kingston, Surrey, a wide experience of real time process control systems including data storage, system identification, modelling and simulation techniques is essential. Experience in the specification, testing and commissioning of complete systems is necessary and an ability to program efficiently in a high level real time language such as Extended Fortran, Coral, etc. is essential, together with a knowledge of mini-computers and peripherals, micro-processors and telemetry. Familiarity with sewage treatment processes and instrumentation is desirable but not essential. The person appointed would for the first 2-3 years be based at a central London design office but spend a proportion of his/her time at the sewage treatment works at Kingston, Surrey, which is to be extended and automated. Subsequently he/she would be based at the treatment works and would have a responsibility for the commissioning of continuing successful operation of the scheme followed by further schemes in the Greater London area.

35 Hour week - 24 days holiday - Pension Scheme

Application forms are available from Personnel Branch, 4th Floor, Broadway Buildings, 60-64 Broadway, London, SW1H 0DB (Telephone 01-830 0766) quoting reference 78.

Closing date: 28 May, 1978.

Thames Water

NORTHERN HOME COUNTIES

AND MIDLANDS

SALES ENGINEERS

Are you selling in any of these market areas?

- ★ Process Control
- ★ Automation
- ★ Numerical Control
- ★ Data Logging
- ★ Computer Based Industrial Systems

ARE YOU EARNING £12,000+, WITH COMPANY CAR AND LARGE COMPANY BENEFITS?

This major international mini computer supplier is answering the world's demand for greater productivity by producing automation systems with advanced technology.

Tremendous sales success has created the demand for additional sales engineers in London and the Midlands.

Successful applicants will enjoy an excellent income package from a high base salary plus commission. A company car is provided and benefits reflect the importance of the positions.

Telephone the advising consultant quoting reference CW/181 or write:

Insight Marketing & Personnel Consultants Limited
72-75 Marylebone High Street
London W1M 4AJ
Telephone No. 01-486 5644

SENIOR SALES

Basics to £7,000 + 12 month Guarantees
Quota c.£13,000 + Car or allowance
Distributed Intelligence/Communications

Applications are invited from established professionals with proven records of selling successfully against budgets. Sound commercial experience in the mini/mainframe industry and good applications experience in teleprocessing environments are particularly useful. An excellent starting salary package will be paid to successful candidates and an exciting future is assured.

Reference CW/15/1

SNR. SUPPORT ANALYSTS

To £7,000 p.a. + Car
Teleprocessing/Communications

The emphasis is on a high technical level of teleprocessing and/or communications experience gained in commercial environments. The jobs involve pre and post sales analysis and a high percentage of client liaison and sales support work. Applicants will be mature with the confidence gained either from holding responsible positions in user environments or in similar support roles.

Reference CW/15/2

Vacancies exist in these areas:
London and Home Counties
Birmingham and the Midlands
Bristol and the West Country
Manchester and the North

Applications will be treated with the strictest confidence and should be made to BOB BOWER, Advising Director.

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE, LONDON EC4V 6BN

Telephone 01-353 7141 (24 hours)

Hutton
SPECIALIST RECRUITMENT CONSULTANTS

MARKETING MANAGER

Accounting Packages
Computer Service Industry
Basic £7,500 + Bonus £1,500 + Car
West London Based

Our clients are a leading name in the computer service industry. Acquisition, expansion and development have dictated that they recruit a Marketing Manager to create marketing strategy for accounting packages with particular emphasis on firms of professional accounts.

Other useful experience could be a knowledge of commercial banking and it would be advantageous if candidates have had direct sales experience at some time. A £8,000 salary package plus a company car will be provided and the future of a successful applicant is assured with this highly professional organisation.

Reference CW/15/3

PRODUCT LINE MANAGERS

Mini Computers/Terminals
Basic to £9,000 + Expenses

Usual Big-Company Benefits

Central London Based

Our clients are one of the World's largest mini computer and terminal manufacturers with an excellent reputation in the communications and distributed intelligence market places. They require two Product Line Managers, one for their mini computer equipment and the other for their range of terminals. These managers will have total marketing responsibility for their designated product lines including forecasting, pricing, monitoring and training. Naturally it would be expected that suitable applicants will identify closely with the product lines and the job specification.

Reference CW/15/4

Interested applicants should telephone BOB BOWER, Advising Director. Full details are available on all positions at interview.

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE, LONDON EC4V 6BN

Telephone 01-353 7141 (24 hours)

Hutton
SPECIALIST RECRUITMENT CONSULTANTS

NATIONAL SUPPORT MANAGER

Basic c. £12,000 p.a.

Usual Benefits including:

Substantial Tax Free Car Allowance

Central London Based

Our clients are a highly reputable and respected manufacturer of computer systems and are particularly involved in the decentralised data processing and communications market places.

They operate in the United Kingdom through a national network of branches supporting both front line sales executives and pre and post sales support teams.

We are to identify suitable candidates for the vacancy of National Support Manager. The job involves the development and responsibility for implementing the systems and software support policy within the company. The successful applicant will be advising on various facets of the overall support structure including the operating systems support provided by the Company, the role of the software house, the role of pre and post sales support at branch level, and the role of the central software development department.

We are inviting applications from candidates who readily identify with the specification and feel that it is unlikely that any applicant who has not held a responsible position in a similar support environment, would have the necessary experience to succeed in this highly demanding and vital position.

Reference CW/15/5

Please contact BOB BOWER, Advising Director in the strictest confidence to arrange an appointment.

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE, LONDON EC4V 6BN

Telephone 01-353 7141 (24 hours)

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